

**KICK IT**

**Unleashing Indoor Football Shootball Potential**

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# **Research Report**

## **Kick it: Unleashing Indoor Football Shooting Potential**

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School of Art Design & Architecture**

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# **Kick it: Unleashing Indoor Football Shooting Potential**

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**Submitted in Partial Fulfillment of the Requirement  
for the Degree of Industrial Design**

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**National University of Science & Technology  
School of Art Design & Architecture, SADA**

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**Approved by the Guidance Committee**

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**June 2024**

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## Kick-it

A Research Report

**Omer Sohail**

A research report submitted for evaluation to School of Art, Design and Architecture on 7<sup>th</sup> June 2024, in partial fulfillment of the requirement for the degree of B.ID.

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## 1.0 Abstract

Football shooting is not a simple thing that an individual can master at the drop of a hat since it involves a number of techniques that needs regular practice, accuracy and effort. Because shooting prowess is one of the most vital components of soccer matches, shooting skill could be the determining factor on the success of a team in the soccer matches. Football skills which are known to be possessed by the elite footballers were commonly developed through trainings on

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the field and in additional practice sessions in their homes. But, since shooting has its own power and it is a kind of dynamic activity, using traditional home practice is not enough and can not be an effective method. The following project focuses on examining the real-life issue of football shooting and seeking to identify how practice inside a restricted area can be a challenge given the restrictions that arise when performing the actual task.

Through analysing the fine details of different shooting methods preformed in this project, the objective of achieving an in-depth understanding and expertise of the mechanics of indoor football training is met. Closely examining the case and effectively mapping out the contingencies of the work, the project aims at narrowing down the existing gap between traditional training theories and practical football development. In this approach, the project incorporates distinct training methodologies that may be effective for indoor use only, and consequently, players will have ample chance to practice their shooting skills irrespective of the space factor.

Moreover, this project oversteps the boundaries of a clearly defined technical task to discuss the psychological and physical factors of football training. Knowing that the mental and physical aspects are intertwined, it considers new ways of approaching the desire to move, the development of motor skills, and building mental endurance when exercising at home. Furthermore, the project highlights the relationship between physical fitness and shooting precision while stressing on agility, speed, and speed as significant factors to the maximum efficiency shooting prowess.

In fact, this project could be seen as an innovative attempt to completely overhaul the existing practice of shooting drills in football and transform it into an innovative form of practice based on indoors shooting operations. As a result of integrating such technological advancements in its design, best practices in teaching and learning as well as experimental findings, it aims at helping players – beginning with novices and extending to professional competitors – perform optimally and achieve their best when shooting irrespective of the conditions of the pitching environment.

## 2.0 Introduction

It can never be a layman game because it involves techniques and players are expected to excel under different circumstances. Some of the components of this approach include having the right and strong shot making features, during tight moments in matches. In order to enhance the shooting capability in football, there is need to undertake systematic studies covering areas like home based training, psychological therapy, feedback devices, tactful translation and physical conditioning. The purpose of this study is to explore and reveal usable techniques and key variances which can enhance football player's accuracy with respect to shooting focusing on the potential benefits of practicing this skill indoor. This idea holds impressive relevance due to the multifold approach used in addressing the challenges and opportunities associated with improving the effectiveness of shooting in football especially in the cases that can be 'indoors' within training pitches. Furthermore, by considering research goals that focus on psychological aspects, feedback mechanisms, transfer of training, and fitness in practicing indoors, this study seeks to fill essential gaps in the literature in establishing the ways through which players can effectively train for increasing their shooting precision while fully recognizing the challenges

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posed by outdoor conditions.

Thus, bringing a positive to a higher level of football performance, the findings of this study will be useful for individual player care and for coaching, training and talent identification.

When football players are practicing on how to shoot, they encounter so many challenges and constraints because they are doing it indoors. One limitation is that most rules are designated around the physical limitation of space, and this is a disadvantage since few players can do most of the shooting drills within their compound. Further, the danger of destroying or damaging some valuable asset constitutes a major concern; it discourages the players to apply force when striking the ball or to try out special moves during a practice session. Likelihood of causing noise interference and the consideration of posing inconvenience to neighbors also acts as constraints to players, in the sense that they cannot indulge in more practice and intense practice sessions involving shooting. In the point one main issue that affect players is that they lack, shooting drills that can be done at home.

## 3.0 Theoretical Framework

### 3.1 Importance of Repetition in Skill Acquisition

This fact that it is helpful to repeat skills in order to obtain them is familiar and cannot be overestimated particularly taking into consideration the function it serves in memory. Indeed, it has been widely understood that, memory benefits greatly from repetition and there are several theories that have been put forward to try and explain this effect. Nevertheless, there are several issues that researchers still have not provided a sufficient amount of answers about how exactly it is possible to use repetition in memory. Doing research, the author discovered that there is one universally proven strategy effective in memorization: repetition. In this paper, we delve into the concept of frequency representation in memory and examine three different theories: The three memory theories include the strength hypothesis, the multiple-trace hypothesis, and the

propositional encoding hypothesis. The present study also explores the nature of how repeated presentations work in terms of signaling situations to call for prior learning from the previous happenings. In conclusion, it is imperative to have a proper understanding of the diverse effects of repetition whenever one formulates strategies of learning or acquiring new skills and knowledge. (*Repetition and Memory Michael J. Hacker and James V. Hinrichs., 2024*)

### 3.2 Memory Enhancement in Football Skill Training

Memory enhancement, therefore, forms a vital components of developing specific skills for football. It influences the decision making process, practical efficiency and the level of expertise of sportsmen in concern. The last is explicit memory based on the results of Eastmond's research and it concerns the type of memory that you don't even realize you're using, when you're using it unconsciously. It has a very crucial influence on how athletes comport themselves in the sporting activities. One of the aspects of the implicit memory that can be observed in sports situation is the repetition priming. In particular, it can be beneficial in supporting the decision making process for athletes and coaches since if individuals are already highly trained, they are

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likely to be aware of optimal speeds for decision making in their own right. Depending on the sport you are aiming to master, there are cognitive memory processes which play a vital role. These include storing the images and models of game experiences that may be easily retrieved in the long term memory. How effectiveness of explicit and implicit memory affects the overall memory hence overall performance plays the cognitive processes that are involved in the identification of and reaction to specific situations in a game sheds light on the nature of the relationship between memory and performance in football skill training.

(Hintzman, D. L. (1976))

**3.3 Impact of Environmental Factors on Skill Development** Another factor that needs to be closely observed is treatment of players with regard to environmental conditions which affects their skill development in football particularly where the climate is hot like in Summer where temperatures and humidity are high. As evident in matches conducted under the said circumstances, there is a possibility that a player will record low physical fitness because of the excessive heat strain. Weekend cycling fatigue also escalates due to hyperthermia, along with gradually worsening dehydration, which can cause different health issues. This, coupled with heat stress and dehydration, may reduce the non-movement distance and physical exertion maximized in the match. It is although an effective process for adjusting to existent conditions, Acclimatization proved to afford limited protection against high temperatures hence the need for ways and means of managing water loss in hot and humid environment. These harsh effects of hyperthermia are not limited only to the bodily exhaustion and fatigue but also compromises the mental ability and decision making during a match play. Coaches and athletes planning for a performance during a competition must consider the factors of heat in the environment as well as have options of limited rehydration due to the constraints of travel and time for preparation, thus emphasizing on negative effects that come with heat stress and dehydration. As the above findings indicate, physical environment, physiological processes, and skill development are very complex necessitating football skill learning. (*Ellsworth-Krebs, K., Reid, L., & Hunter, C. J. (2019)*)

## 4.0 Types of Shooting Techniques and Practice Methods

### 4.1 Analysis of Different Shooting Techniques in Football

To study various types of shots in football is actually a sophisticated assessment of small details that help to accurately aim when making a shot. I felt it easier to tell the different individuals by the manner they tread the playing field, the part of the boot they use in striking, and their body posture. They are the run-up, the approach and the shots types which include the volley's, chips and long range strikes. It 'also introduced an added dimension through-spin or swerve given to the ball, and decisions relating to pressurizing the opposition's goalkeeper or not, or the positioning of own goalkeeper for the expected shots among others. As for the handyman persona, well, players have to look for practicality, consistency and adaptability because they are attempting to perfect a handful of techniques that apply to their chosen style of play. Technological advances including the use of high-speed cameras and other tools for motion

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analysis enhances knowledge of biomechanics as well as enhancing shooting techniques. This research on the other hand, in addition to understanding how to execute technical moves, also focus on how to build overall skills as a player under training, practice and learning in a dynamic active football play setting that is a part of footballing science.

### 4.2 Drills and Exercises for Perfecting Shooting Accuracy

In becoming an excellent shooter of the ball in soccer, the player needs a long practice and training in order to enhance their skill level and efficiently shoot the ball. Among the techniques used some of them are striking from different positions, directions and distance as would go with real situation used in matches. This is where players get the muscle memory and the ability to shot on goal. As the players advance from basic drills, the disposals should become more complex as compared to the initial formation. These are the gears of every practical and mental part of shooting, other mental techniques such as visualization of target points and how to maintain concentration during pressure can also be used in making a general shooting accuracy. It is advisable that one can adopt demarcations on goal posts which offer the real sense in real time in increasing the efficiency of these drills or even virtual reality which simulates real play making and provides solutions in real time. Therefore, a radius of the program made up of the exercises and drills will effectively provide players with precision conduct that will facilitate a continuous scoring prowess in dynamic game conditions.

(Testing Strength and Power in Soccer Players: The Application of Conventional and Traditional Methods of Assessment., 2015)

### 4.3 Training Approaches for Power, Precision, and Placement

As football shooting involves power, precision and placement, training a football player is equally complex in creating a technique that will make that shot. Power training on the other hand enhances the performance ability like; the velocity of the kick, power, suddenness or strength of a player. These practices might entail the resistance based exercises, plyometrics & specialized weight training to tone up vital lower body muscles that are crucial in propelling

powerful shots. While repeat and consistency is a natural effect of the following exercises, precision and placement on the other hand is made through the incorporation of drills which concentrated strictly on the aspects of ball handling, proper foot work and aiming at particular sections of the net. The other approach that could be adopted would be to make the player participate in repetitious activities that simulate various shooting styles and positions, which makes the body respond correctly on the efficient and correct strikes. Besides, it incorporates the elements of situational awareness and the ability to make decisions that facilitate shooting and help find the best shooting position based on an actual game. Thus, an all round training plan involves ensuring the footballers with a power based practice in which they can be trained on the power of shooting as well as precision based drills in that the players are trained on precision of shooting. (*Testing Strength and Power in Soccer Players: The Application of Conventional and Traditional Methods of Assessment.*, 2015)

## 5.0 Psychological Factors and Skill Transfer

### 5.1 Motivation and Skill Retention in At-Home Training

Soccer shooting practice is a key area that can benefit from the home training in that developing motivation and skills from home training is so vital in the improvement of soccer shooting

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practice. As the players notice increased skills, they want to practice at home more. Training plans that prioritize numerous shooting exercises assist in retaining information and maintain mental sharpness regarding the activities which makes this vital in creating enthusiasm. If we combine things to improve memory into the training, players do not only get improved in shooting, but they also remember how to be consistent with getting improvements. It's for this reason that a flexible training space is an absolute necessity if the players are to continue with the game. Thus, the idea here is to develop a plan to recover shooting abilities and maintain players retention by providing experiences tailored to their potential and preferences at the safe space of their home. (*Ellsworth-Krebs, K., Reid, L., & Hunter, C. J. (2019)*)

### 5.2 Skill Transferability to Match Scenarios

In simple terms, this study checks if practicing soccer shots at home helps in real games. It looks into more than just boosting your shooting skills alone-. It's about how at-home practice can be used in real game situations. The research looks at whether practicing kicks at home actually help during an intense game-. The aim is not only to get better at shooting in a calm setting, but also to use this skill in a fast-paced soccer game. This study hopes to link practice and actual game- performance. This could give us a better idea about how at-home practice- can improve game skills. (*Hintzman, D. L. (1976)*)

### 5.3 Psychological Impact of Controlled Training Environments

How does practicing soccer shots indoors affect a player's mind? That's our focus. We're examining how practicing in a safe, predictable- indoor space changes a player's confidence and concentration. It's all about the mind game- here. We think being inside, where everything stays the same, can help players develop skills in a positive- headspace. How does feeling safe, motivation, and confidence- play their part? We'll dive deep into these key areas. With this knowledge, we can create better indoor training programs. Plus, we can better understand how mindset can change the game- when it's the real deal. (*Ellsworth-Krebs, K., Reid, L., & Hunter, C. J. (2019)*)

## 6.0 Physical Fitness and Shooting Proficiency

**6.1 Correlation between Physical Fitness and Shooting Accuracy** In soccer, there's a link between being fit and shooting on target. This link means players need a carefully planned strength and lifting routine that suits the sport. Soccer is unique and so each type of lifting program is designed for each position and for each time of the year. There are three parts to the soccer season: off-season, in-season, and transition. Each one needs a different approach to building strength. During the off-season, players work on getting stronger, bigger, and more powerful, focusing on muscle growth, maximum strength, and power. When in-season, the aim is to keep the strength they gained, with less intense workouts, but in the transition phase, players take it easy to rest and regain energy. Functional power training fixes the balance. As for peak power training, it calls upon fast twitch muscles which are key for speedy bursts of energy. Power training shifts strength to explosive energy, focusing on quick, sports-centered actions. The link between fitness and shot accuracy depends on these workout stages. This guarantees that football players are not just tough, but have the quickness and force needed for accurate and potent kicks on the field. (*Strength Training for Football... The Elite Approach - Sport Fitness Advisor, 2024*)

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**6.2 Agility and Speed Training for Enhanced Shooting Performance** Football's shooting performance improves greatly from agility and speed training, a key part of the all-encompassing strength training strategy. Being able to change direction fast often matters more than running in a straight line at top speed. Hence, agility and quickness stand as key components for sporting proficiency. Full-body football motions require quick starts, stops, and shifts in direction, highlighting agility's necessity. A planned method to weightlifting, mixing in agility-aimed exercises, is vital for footballers. Off-season drills aim to boost maximum strength, size, and power, but must fold in workouts that lift agility too. Accuracy and speed training are essential for bridging the gap between practice and competition since athletic skills are complex and need both physical and cognitive components. High-agility performers have an advantage over others, particularly when it comes to spotting and seizing cues that are pertinent to the game. For football players looking to improve their shooting on the pitch, a comprehensive training programme that incorporates agility and speed training is essential. (*Dawes, J. (Ed.). (2019). Developing agility and quickness. Human Kinetics Publishers.*)

**6.3 Long-term Benefits of Physical Conditioning on Skill Development** The comprehensive training programme created to meet the individual needs of athletes clearly demonstrates the long-term advantages of physical fitness on the development of football skills. The 12-month master plan places a strong emphasis on physical conditioning as a means of long term skill development, and it is designed to correspond with various stages of the football season. The conditioning programme makes sure that strength, size, and explosive power are all developed thoroughly by including several phases such as hypertrophy, maximal strength, and power training. This method, when combined with agility and speed training, helps athletes enhance their talents throughout the course of their careers while also producing immediate performance advantages. (*Strength Training for Football... The Elite Approach - Sport Fitness Advisor, 2024*)

## 7.0 Technological Innovations in Indoor Football Training

### 7.1 Overview of Modern Training Technologies

#### 7.1.1 Virtual Reality in Football Training

Virtual reality (VR) has recently evolved into a state-of-art technology that has unveiled tremendous applicability in sports training and technique development that entails realistic model enactment. The VR technology used in football helps players train on shooting and similar activities in a more controlled environment and the process can be repeated several times in order to perfect the skill. These simulations may be able to reproduce pressures of a specific match circumstance, make choices as well as positional sense, in some cases, without adds from a regular pitch. These findings show that there is a vast potential for the use of VR training to increase the practical shooting competency and result in increased shooting precision to boot. That is why, using Virtual Reality as a training method can give a unique advantage as it provides instant feedback and virtually, no physical exhaustion is involved even when the trainee practices unmorphologically. Moreover, the use of the VR can offer more simplifications and

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challenges for players at any skill level. This technology is also useful in tracking the achievements made and the efficiency of training in comprehending that aspects that need enhancement can be detected as well as the training schedules can be adjusted.

#### 7. 1. 2 Use of Smart Balls and Sensors

The modern use of smart balls with enhanced sensors has come as a revolution in the performance of the players through giving complete attributes of different aspects. The shooting of these particular targets are enabled by sensors that quantify parameters like ball velocity, rotation, force, and path. Together with corresponding mobile applications, these smart balls also help the user investigate the problem in the process of the play and make corrections right away; you can see the improvement in the game over time as well. The information which is gathered can be used to establish trends, which in turn can allow for corrections and improvements to be made, as well as offering a route-map that will prove invaluable when teaching is being done. Coaches get to know the mean and standard deviation of these measures and this help them understand their players' technical levels and where they are likely to improve. Smart balls build on existing approaches with the help of solving problems based on the technological advancement but at the same time maintain traditional training methods that provide fundamental skill building with focus on data and specific preferences of an individual.

#### 7.1.3 Impact of Wearable tech on Performance Analysis

A number of wearable technologies including GPS trackers, accelerometers and heart rate monitors also have huge impact in the performance analysis for collecting the data regarding the physical status of the player and his movements. These gadgets aid in monitoring the most

important aspects such as the distance travelled, speed, agility and even exertion that it enables the monitoring of the fitness level of the player. In analyzing and preparing players for the next indoor football training this kind of data is very important when organizing the workout to ensure that all the players are trained to their full capacity. Similarly wearable tech could also track recovery time as this would mean that there would be less cases of overtraining because the devices would be efficiently alerting its users that they have had enough exercise for the day. By using this data, the trainer can be able to develop a plan that would enhance the performance of the players without putting so much stress in their bodies and therefore lead to development of better athletic performance. Applications of wearable technology in football training sessions provide relevant and beneficial information when it comes to training programs and methods to adopt to avoid causing harm to athletes during training.

## 7. 2 Features of the Shooting Product and Its Application Indoors

### 7. 2. 1 Design and Engineering Considerations

The design and engineering considerations specific to Indoor Shooting Product Safety remains a critical aspect of designing and engineering this product alongside functionality and ease of use. Some of the considerations to be made are; it is important to choose hard wearing materials that are resilient to the impact forces that occur during repeated shooting. These materials should also

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be portable and light to allow easy handling when putting up the frames and moving from one location to the other. The product requires stability when in use to avoid the influence of train variations on the training regime that is required. Proportional to the height and degree of incline for the seats, it can be adjusted to fit all sizes and abilities of the players thus increasing the sales appeal of the product. Besides, the design aspect should consider the usability and the basic design such that users do not find it complex to maneuver it. Within this category, they are understood as including, first of all, clear labeling or instructions on how the object can be set up and operated and secondly, options that enable easy manipulation. An effective product design and development enables increasing the efficiency of training while also bringing a long-life product with satisfied users.

### 7. 2. 2 Material Selection and Durability Testing

According to the requirements of indoor shooting and taking into consideration the sustainability of the product, proper material should be chosen. High density plastics and fabric reinforcements will also be preferable since they will also have the capacity to absorb force in the process preventing wear and tear. These materials must be subjected to high stress durability tests under different circumstances ranging from temperature variation, variation in humidity and other conditions that can cause material fatigue. Durability test: The testing should also involve firing at the product for several times with high impact shots to understand whether the product will withstand such shots repeatedly. Also, materials must be selected in order their maintenance and use; it is desired the materials to be not toxic and caused allergic reactions beginning. Endurance could also require actual attempts at the product with the players to establish the endurance strength of the product in actual training situations. Preventing capability deterioration through



standard usage will improve the product quality and be useful to the users since they would not have to constantly get new products.

### 7. 2. 3 Compatibility with Existing Training Equipment

So, the indoor shooting product is needed introduced into the training arsenal, and it thus should fit in well with other available training assets. These include compatibility with the smart balls and wearable technologies for the purpose of embracing a comprehensive training system. For instance, the product can have sensors integrated into this design that connect with mobile apps to ensure that the shooter receives comprehensive data and feedback on shooting proficiency. Compliance with video analysis tools in practice enables many players and trainers to monitor and modify the sessions using relevant real-time data. The product should also be designed in such a way that the existing cone range and nets are incorporated to make it possible to perform so many drills and exercises. This factor makes it easy to use in the general training as it only requires inclusion in the routine training programs without any extensive modification. This compatibility proves not only to be very useful in the improvement of the product, but also in making the most of a fruitful and efficient training system.

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## 7.3 User Experience and Feedback

### 7. 3. 1 Integrated Plan and Feedback

Gathering the first and important step to take before the actual implementation of the indoor shooting product is the initial user testing section, which involves some players across the fields to test the product to determine its efficiency. In this phase, feedback is collected on a several aspects so as usability, application as well as sturdiness and how the product enhances shooting proficiency. The players' comments on how the product fits into their training regime together with other comments on how viable the product is in several indoor environments will be useful in the refinement of the conception. An important advantage of this approach is that it allows for corrections of mistakes in design or usability that an interface developer may have overlooked in the earlier design phases. These methods as surveys, focus groups and direct observation are useful as they help to get various details of the feedback. Therefore, within the context of these early patterns, developers might consider these modifications to improve the product's general performance and user engagement.

### 7. 3. 2 Changes based on Feedback

Change to the content or elements of a product may be recommended based on the feedback that was received during the first trial run of the product. For instance, if users note that it is somehow cumbersome to set up the product, it may be easier to further simplify the assembly process or include additional explanatory materials. Of these, it may also be possible to augment the base for added stability or modify the way the hoop can be moved to suit the height of the

players or a proper shooting technique. A technique of continuing testing and development is used to ensure that any change that is made is tested to the best of its capacity and that it is enhancing the product in the best way possible. This process plays a critical role in developing a finer product depending on the needs and expectations of the ward/training beneficiaries hence higher satisfaction and training achievement. Making constant updates based on the feedback one receives is very crucial so as to ensure that the product that one has developed serves the purpose it was designed for in the ever changing market of soccer training.

### 7. 3. Longitudinal studies have been conducted as follows

Study 1: Observational and Analytical Longitudinal Study Longitudinal studies are significant for perceiving housing product effectiveness. These experiments capture behaviors, especially shooting accuracy, power, and general performance across many weeks, months and in some cases, years. Through these indices, the researchers can establish how the product modifies the behaviour of people in the society and contributes to the constant or continued learning of profession.

## 8.0 Case Studies and Real World Applications

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### 8.1 Case Study 1: Youth Training Programs

#### 8.1.1 Implementation in Youth Academies

Launched in the indoor shooting product skills development stakeholders in youth academies will greatly benefit. These academies create suitable training displays to satisfy the theoretical and practical requirements of achievement. The incorporation of the product in the training regimen of teams ensures that the program developed for application during the game may in fact be practiced during training. This is especially advantageous at the time of bad weather or when the boarding facilities have not been provided outside. Thus, it facilitates its integration into the existing Training programs, which might assist academies in providing proper and regular skills enhancement. Coaches can thus make use of the product to establish certain drills in relation to difficulty shooting issues which young players experience for instance; accuracy and power. The organised structure of youth academies also makes it easier to track the progress of development which, in turn, aids in the evaluation of the product over the period under consideration.

#### 8. 1. 2 Effects on skill of Young Players

The feedback that is received from the indoor shooting product can significantly influence the learning process of young players. If during shooting you will be using the product frequently, your shooting accuracy, power as well as consistency will dramatically improve. For instance, through repeated uses of the product, the players may be able to learn the physical movements of

their muscles and thus the technical expertise of playing the game improves to accurate and effective shots. Furthermore, the physical setting of the training is indoors thus they practice without disturbances since; there are lots of distractions when one is practicing outside. These improvements should therefore be assessed within cases by means of standardized and non standardized tools like pre-performance and post-training tests and from reactions from the players and coaches. Recording such results support the product's efficacy and show how it could aid in fostering young athletes faster than other conventional means.

### 8. 1. 3 Comparison with Conventional Learning Processes

Comparing this indoor shooting product to conventional approaches to training affords the best way of understanding the benefits and weaknesses of the product in question. Traditional methods used in training are normally done including outdoors which are characterized by a number of problems as far as practice is concerned such as unfavourable weather conditions and space. On the other hand, the indoor product has a more defined and stable training aid mainly used throughout the year. The effectiveness of the product can also be expressed in such commercial factors, as the frequency of training sessions, rates of skill improvement and overall satisfaction of the players. For example, investigations may reveal that sportsmen who utilise the indoor item score their aims in a more precise manner, and within a shorter duration than their counterparts who train outdoors. This allows for a comprehension of the versatility of indoor shooting product and its relevance in light of the other three composites.

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Case Study 2: Professional Teams Home Professional Teams Playing surface of professional teams were constructed with different types of materials as many may not be aware while playing there favorite sport.

### 8. 2. 1 Adoption by Professional Clubs

The idea of indoor shooting products in professional clubs could be also useful to reveal its helpfulness on the highest competitive level. 1 Adoption by Professional Clubs Feasibility study in the context of the best and most prestigious football clubs in the country may be helpful to determine their usefulness at the level of the highest professionalism. Bigger clubs may be in position to acquire or develop better training technology and training equipment, hence making them an ideal place to experiment with new training equipment. Team managers, coaches and players can use the product during off-season to hone their skills or regain form, or as supplementary training for improving certain aspects of shooting mechanics. Professional clubs are more structured and thereby deliver high performance therefore it can be said that it passes several viability checks which include testing of the product as to how effective, durable and how it complements other practices.

### 8. 2. 2 Practical Outcomes Performance

Measuring indicators including shooting precision, velocity, reliability are useful in identifying how the product influences players from a quantitative standpoint. Those are great indicators to

measure while using the product and at the end of the experiment, and any improvements in those metrics will indicate the success of the product. For example, the increase in shot accuracy and power suggests that the product does help to improve Shooting Performance, thereby supporting the claims made by the company. Furthermore, it may be useful to track players' performance in matches, to see how effectively the skills inculcated with help of the product contribute to the actual game process. Information gathered from playing should also be utilized in order to enhance the product in order to meet the need of the professional players, the consumption tangible of the sports equipment is useful once it fulfills the needs of the high ranking players to the maximum level.

### 8. 2. 3 Testimonials from Coaches and Players

Ending the data collection process, it is critical to gather testimonial information from coaches and players as it provides further evidence of the utility and effectiveness of the product. Responding coaches could give details of how the product may complement other kinds of training, how useful the product has been in categories of abilities and any variations seen in the performance level of the players. People use the product and can post how it has positively benefited them whether it's the shooting ability part or the confidence. These are actual sentiments of those who have used the product and therefore when used as testimonials they can provide concrete support for any marketing campaign. Also, feedback from other professionals can serve as the basis for further product developments and enhancements to make sure it would suit the athletes' high level.

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**8.3 This section has individual stories of three athletes: Aitezaz, Maria, and Eshan.**

### 8. 3. 1 Real Life Stories of Using the Indoor Shooting Product

Testimonials may include real stories of athletes on how it has affected them, using the product, that may be more easy to understand than research findings. These are the following:

Athletes at different levels and ages that include youth, college, and professional players have been featured in the product's promotion, hence revealing the product's versatility and efficacy. These profiles should show certain controversial issues as an athlete that were solved with the product's help. For example, an athlete may share how this product helped him/her improve on shots while playing and can perform well in matches. But the success story can illustrate how it works by providing more detailed accounts that motivate other players to use the product and confirm the maker's assertions.

### 8. 3. 2 Promoting Long-Term Benefits

While it is difficult to determine the amount of people who would have pursued other activities that are unrelated to athletics if not for our product, tracking athletes' achievements and subsequent career advancements after using the product offers tangible proof and insight to the

cumulative effects of the product. Some of the things that can be considered may involve scholarship that was earned by an athlete and some that was directly offered to them by professional teams as well as the achievements of the athlete in his career. All of these performances are closely related to advancements in shooting abilities that stem from the use of this product. Telling stories like these uses assists in showcasing the need and relevance of the product in advancing the dreams of the athletes and therefore makes the whole product more credible. These achievements can also be showcased in advertisements, which may help to attract more people to using the product and serving as a constant reminder of the benefits obtained through use of the product.

### 8. 3. 3 Recommendations

Recommendation that may be gathered from the athletes over the effectiveness of the product in enhancing their training, the problems that they experienced and their overall feedback can give more insights on the product's usefulness to athletes in the further usage of the product. These may include ideas on how to get maximum gains from use of the product, which drills or some particular dances that were helpful. Motivation and Setbacks It is also possible for athletes to exchange tips and recommendations on how to deal with various challenges they may face during training, or when they are feeling like they no longer have the desire to continue. Providing the tips on the use of application, these personal stories can be rather helpful for the new users too, to get the greatest benefit of the product with the short training period.

## 9. 0: Comparison with Other Sports

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### 9. 1 In-door Training in Basketball

#### 9. 1. 1 Techniques and technologies

The techniques and technologies used in Basketball training involves several programs which are usually practices indoors, these include skills like shooting skills and ball control, and defense. For example, shooting machines that enable a shooter to have the ball back in his hands within a few seconds and Video Analysis system that helps to make training more efficient. These tools help the players in shooting at various areas of the court with the repeat shooting till developing the memory muscles needed for accuracy. In analyzing the shot, the use of video allows for explicating specific aspects of their shooting form, and allows for points of improvement as well as development to be quantified throughout the course of training. Indoor training also includes agility and strength conditioning to cause the physical characteristic that are needed to practice the sport. Thus, trainers in football should be aware of the techniques and technologies used to optimize the performance of the players in shooting drills and should learn from such examples to incorporate them in football training.

#### 9. 1. 2 Skill Transfer and Game Performance

Graphic analysis of how basketball indoor training relates to or enhances game play will provide

a perfect model that can be paralleled to football. Indoor basketball training involves a lot of intense practices that may mimic actual game plays in order to bring out the intended skills at necessary moments. This approach can best be applied in football because while practicing their shots during indoor training, skills can specifically be directed to conditions that allow for this and practice made accordingly.

## 9. 2: Indoor Training In Tennis

### 9. 2. 1 Specificity

Tennis training involves specificity, which means that all essentials that would be useful in the matches are trained and rehearsed. Ball machines are widely utilized in indoor training facilities to keep the workout session organized and early consistent so that the player can focus on the accuracy and strategy only. On this ground, these machines can be programmed in a way that it produces any type of shot and the performance of the players depending on the shot produced. Strengthening these areas of the motor preparation ensures, this can be directly applied in football shooting drills where the objective is to place the ball accurately and with power. Thus applying similar technologies and training methodologies reaching its peak in an indoor shooting area football players can augment their shooting abilities.

### 9. 2. 2 Impact on Match Play

The effects to match play Basketball indoor tennis training has been found out to affect match play it is due to the fact that this kind of training offers an environment where players get to train and hone their skills in a well contained environment. These games interpose environmental

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factors so players can strictly focus on style and gameplay. In football, for example, it can be used where training takes place indoors and repetition of the shooting technique can be done with solely the attention being paid to how accurate and powerful the shot is in comparison to outside conditions which are unpredictable. Football players should particularly understand that the level of precision resulting from shooting practicing in a controlled environment will be enhanced, thus boosting their performances in the matches.

## 9. 3 Lessons from Other Sports for Football Training

### 9. 3. 1 Adaptable Techniques and Drills

In this section, we highlight the importance of technique identification and technique adaptation from other sports to the football training applications as the first adaptable technique and drill. For example, you may learn that basketball shots are fired by shooting machines and agility drills while football and hence make suitable to adapt for shooting accuracy and quickness enhancement. Likewise, accumulated data that became the foundation of tennis based on a play style that emphasizes accuracy and control can be applied in the case of football, especially when assigning shooting exercises. Football trainers can move towards developing a broad-spectrum training routine for the sport by integrating aspects of other sports into its training practices.

## 10.0 Pedagogical Approaches to Indoor Football Training

### 10.1 Education Theories in Skill Acquisition

#### 10.1.1 Constructive Approaches

Found in constructivism, theories underline that learning happens through experience and activity engagement. Specifically for football training, it entails into practice sessions poor light shooting conditions in a practice that emulates actual game conditions. They get to practice against other players, trying out new moves and trapping methods, as well as what they have found to be effective and what proved to be ineffective. This approach of engaging the player's practical and exploratory ability is effective in presenting the game and developing the problem solving skills of the players. The training activities based on the constructivist approach may include such activities as mimic games and other activities, which create the overall match atmosphere and pressure that will be expected during the competitions. In my opinion, it is much more efficient to go through these scenarios to practice shooting in general because It makes players get into it more.

#### 10. 1. 2 Behaviorist Models

Behaviorist models hinge on repetition, which is affecting reinforcement, a factor vital in developing motor skills in sports. In football training this technique involves frequent and continuous shooting practice with feedback in order to correct mistakes and ensure right methods are followed. Such actions as words of encouragement or offering sweets or toys for making

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shots contributes towards encouraging the players and consolidation of learning. Players have an ability to be able interact with the ball for hundred of time per day and hence gain muscle memory, thus, they experience improvements in shooting accuracy power. By organizing training programs and grading according to the protocols established, it is possible to follow behaviorist learning theory and promote consistent practice. This method of practicing the messages ensures that players are able to practice their skills over and over again with feedback given to them each time.

### 10. 2 Coaching Techniques to Train for the Indoor Playing Fields

#### 10. 2. 1 Changes In the Traditional Coaching Style

It is important, therefore, to adapt the traditional coaching methods in order to accommodate the indoor environment in regard to the drills carried out. For instance, such activities as small sided matches or focused shooting practices can be designed for the indoors, so players can rehearse aspects of their craft within restricted conditions. Another ways that can be applied are also rebound nets and target markers in order to increase the training effects and create the game situations. This technique is very effective as coaches can change the basic designed drills and

set them for indoor practice, thereby giving players a good practice regardless of conditions. This feature is very valuable to support training reliability and productivity to ensure participants follow consistent training lessons.

### 10. 2. 2 New coaching concepts

New approaches to coaching and engaging the team, including how video analysis can provide real-time feedback or how game-like features can increase motivation during indoor drills, are helpful in improving the team's indoor practice. Video analysis enables the trainers and players to assess shooting skills and how they require modifications by viewing previous and current clips and pattern of improvement. Techniques such as point-based activities that reward players with 'a point or a prize' to accomplish certain tasks or goals can enhance the training sessions practice and boost the players' morale. These innovations enable the trainers ensure that the training sessions remain as interesting as possible to enable the players remain as much as focused as they should. Despite the numerous benefits that indoor training offers, the activity is still a challenge to coaches and trainers which they can turn to their advantage by incorporating technology and thinking creatively.

## 10.3 Measuring and Assessing Progress

### 10. 3. 1 Quantitative Metrics

Shooting accuracy, the speed and the consistency of the shots taken are specific and measurable aims in training which ensure that there is actual improvement over the time. It is important because when it is implemented and data of the different metrics is taken at several different instances, coaches and players can be able to know results they have got and areas which require changes. For instance, the utilisation of light sensors together with smart balls with latitude and

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longitude in order to determine displays the efficiency of shoot by measuring shots velocities. Employing these metrics through time-based checks assists in establishing reference points and objectives for training so that it stays on track and efficient. Another advantage of using quantitative data lies in the ability to modify the practice time and session based on quantitative evidence for improving the shooting abilities of the Colombian army.

### 10. 3. 2 Qualitative Feedback

The use of qualitative feedback from coaches, peers and especially the players themselves so as to get their perception of the effectiveness of a particular training technique as well as possible drawbacks. For key feedbacks, they may include points that regard to technique, decisions, and general performance during drill and practices. To sum up, regularly searching and using qualitative feedback allows developers to depict a more broader picture of the player's progress. It enables the training of corrective measures the employees deem necessary based on their experiences and observations. To follow, it is important for the coaches to use both qualitative feedback and quantitative data to create shooting skill training programs that will feature aspects of the technical-tactical level and the psychological and technical level. This way and through



providing for all approaching aspects guarantees the well-rounded development of players.

## 11.0 Practical Implementation and Logistics

### 11.1 Setting Up Indoor Training Facilities

#### 11.1.1 Space Requirements and Optimization

Organizations that seek to establish indoor training facilities need to consider environmental space needs so that the environment provided will be relevant to training. The area should be spacious enough to contain the variety of drills and exercises that may be needed to be conducted in practice with adequate space for the players to run and make their movements without getting to the danger of getting injuries. Flexible furniture is vital in the design process for reaction and repose, and these can include the use of mobile equipment that can be moved frequently or put away when not in operation. Using equipment such as foldable goals and bouncing wall nets as well as height adjustable target nets can elongate the versatility of compact space. Moreover, the use of a marking of distinct areas of the floor provides easy organization of drills as well as order in the training events. As seen in Ashley's layout, utilization of space is critical in management of a progressive training environment of multifaceted functions.

#### 11. 1. 2 Safety Precautions and Factors

The Safety Precautions and Factors that should be considered are local training areas that are planned to accommodate indoor training must adhere to standard safety measures. This entails making the playing area safe to prevent accidents, including considering a smoother and spongy surface to aid in the prevention of mishaps. Adding protective padding to the walls or any other structure that might be exposed within the facility also contributes to safety security. Ventilation

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and lighting are also important factors which should be well addressed since proper fresh air supply and sufficient lighting are vital for people who are going to practice intensive physical activities. Daily inspections and upkeep of the equipment are crucial since it ensures any possible risks are seen and rectified immediately. You see, establishing these permits aids in providing a safe ground for practice, whereby the players can train with less worry about personal harm.

## 11. 2 Cost and Resource management

### 11. 2. 1 Budgeting for Equipment and Maintenance

Proper management of equipment and maintenance operating costs is crucial in supporting world-class indoor training environments to top athletes. If any, the initial capital expenditure may consist in procuring such basic required materials as goals, nets, smart balls, sensors, as well as wearable technology. For instance one could incur higher initial costs by opting for better quality, or long lasting materials that require less replacement in future. The various facilities should be checked frequently to ensure that all equipment are in good working condition so as

not to cause additional un-budgeted costs, and at the same time ensuring that the facilities last long. In addition, annual budgets should also consider the costs of replacing worn out equipment as well as incorporating new technologies to keep up with the prevailing market trends. Budgeting aids in the maintenance and sustainability of the facilities in healthcare to meet their purposes optimally all the time.

### 11. 2. 2 Funding and Sponsorship

Explanation Funding and sponsorship entail a process of seeking financial help for running or establishing any endeavor such as the indoor training facilities and, thus can reduce the financial load to a great extent. Funding can be in the form of grants from the sports organizations, government sponsorship and support, and sponsorship by prominent business establishments. More companies in the ones which produce sport apparels and equipments mean more financial supports and better equipments can be sponsored. The sponsors can also stand to gain from association and branding occasion in the development of new talents. These opportunities may be valuable in some way for the designation of and provision of financial support for the construction of the modern high-quality and effective training centers to improve the process of training players.

## 11. 3. Scheduling And Session Planning

### 11. 3. 1 Training Session Format

Even though it may sound obvious to some, structuring of the training sessions guarantees the best outcome of indoor football training. In planning for multiple sessions for teams, plans should show adequate requirements for technical drills, physical and fundamental workout sessions, and tactical exercises. The warm-up activities should be practiced before engaging in rigorous exercises to avert exposing the players to extra and unnecessary rigors. Some shooting drills can be alternatively or combined with other exercises in order not to make awfully boring

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to players. By performing cool- down activities after play time or games, it eases one's body thus reducing the chances of being injured. Player development training can be defined as the comprehensive holistic process of designing training sessions to attend to any and all [of] the training needs of a player with efficiency and effectiveness.

### 11. 3. 2 Balancing Individual and Team Training

Too much focus on individual training and too much focus on team training As for the second goal, it is noted that balancing between individual skills' development and the general team training is rather important for a player. Individual training targets the boosting of individual talent, and this is excellent since it gives the players a chance to concentrate on skills such as shooting and try to make improvements where necessary. Team training, in its turn, refers to such training that is aimed at coordination, communication, and general awareness of the plan and the recent developments. Such considerations imply that both forms of training need to receive the attention and resources of indoor training facilities in order to guarantee the development of the players as both individuals and as a team. For instance, individual working

sessions can be arranged during the periods when there is less traffic, but the group practices may be arranged during the peak traffic hours. This approach applies duality in the scoring system, which helps in developing players that are versatile to deliver impressive performance on individual and team levels.

## 12.0 Future Directions and Innovations

### 12.1 Emerging Technologies in Sports Training

#### 12.1.1 AI and Machine Learning Applications

AI and machine learning are set to become the next important tool kit to be adopted by sports trainers due to the enhanced data and training programs it offers. AI in specific, can efficiently and effectively process large quantities of information coming from the sensors, video and other performance indicators to help learn more about the performance of the players. Computer-based programs can respond to learners' progress; it can change drills and feedbacks that are provided to align with the learning progress of each learner for enhanced skill acquisition. ISCs in football training can improve the efficiency of shooting techniques allowing the point to calculate Plan C in real-time when planning the training for indoor football. These technologies are the future of developing highly more individualized and effective training platforms.

#### 12.1.2 Augmented Reality for Enhanced Training

Arising from the above, augmented reality (AR) brings about new training values for football as it projects explicit information on top of the natural setting. AR can superimpose various visual guidance and feedbacks when players are training about their drills and this will assist them in enhancing their skills in game-making. For instance, using AR glasses, target zones on a goal can be displayed or possible angles to score in a given football match can be shown with a feedback

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on screen instantly. It can also be used to replicate match environments or situations that a player could not practice in real life situations or games. Indoor training is just one facet of the game and when AR is incorporated into it, players get a much more engaging and realistic training platform to help train their skills at a faster rate.

## 12. 2 Potential future advances in products for indoor trainer.

### 12. 2.1 Innovations in Training Equipment Design

In new Development training equipment design there is still room for development in further innovation of training equipment and this improved design leads to higher effectiveness in indoor training equipment. Next major innovations could be better substrate materials that can withstand higher impacts and Forces besides being durable which can be used for individual training modules that can be altered easily. For instance, intelligent materials that change their properties depending on the type of train involved in a specific drill could make training more

effective. Furthermore, the application of biofeedback sensors into equipment could offer data to players, trainers and coaches concerning their performance and movements, which in turn will enable them to fine-tune their strategies/personal approach to a particular sport as well as lessen the effects of injury. The following are conclusion: These innovations can also add the quality and efficiency of indoor football training.

## 13.0 Market Analysis and Business Potential

### 13.1 Market Demands for Indoor Training Products

#### 13.1.1 Current Market Trends

Outdoor training equipment and other recreational business-related contingencies have seen a continuous growth in demand because people around the world have developed strong interest in the indoor fitness training products and equipment. As more companies are expanding smart home gym and virtual training, the consumers are interested in purchasing new products that will provide them with efficiency. Due to high demand for the athletic training and development a need for training equipment that is to be used indoors has been realized in football as the players train throughout the year irrespective of the weather conditions. This trend is supported by the growth in youth interest and advancement in amateur trends that make career training a market product in itself with primary intent on improving results.

#### 13.1.2 Kinds of Potential Consumers

There are four forms of potential consumers of indoor football shooting training products including: Youth academies, Amateur clubs, Professional teams, and Players These products are useful for youth academies and amateur clubs to achieve consistent and effective training

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programmes especially countries known for their bad weather. They can be available to amateur and professional teams, for practicing during the off-season or physically therapy during the season. On the same note there is the consumer segment of individual enthusiasts ranging from the amateur to the semi professional and even the professional level players who would play for casual entertainment or for training and hence need tools at home to enhance these exercises. Another potential market further can also be seen in school, and community centers involving various types of sports since they can include such products into their practice schedules.

## 13. 2 Competitive Landscape

### 13. 2. 1 Key Competitors and Their Offerings

Some of Key Competitors in the indoor football training products include companies that provide smarter balls, virtual training systems, and the usual training equipment such as rebound

nets and target signs. Important competitors may include other sector brands like Adidas, Nike, and Puma among other which all deal with different training gear. Also, modern companies working in the field of technology offer smart training devices with built-in performance analytics and evaluation systems such as DribbleUp and Platermaker. These competitors include equipment's that are relevant to football training from compound and complex levels of refinement of simple and complex skills respectively.

### 13. 2. 2 Unique Selling Point of the Product

The new product is an indoor football shooting training product which has two USPs:

Technology: The idea has the element of coaching and is gadget oriented.

Ease of Use: The product idea is unique and easy to use by players. The major differentiated features are ability to get results of shooting accuracy and power, immediately low-velocity weapons can be linked with mobile apps to provide detailed information about the test firing and the possibility of creating training programs based on the different skill level. Due to its small and light weight structure, the product can be easily used in many inside places, which means that its application is an opportunity. Furthermore, unlike other high end training technologies, it's comparatively cheaper to purchase and use, thus is able to appeal to more buyers. Taking all the mentioned features into consideration, one can state that such positioning of the product is most appropriate since it can be deemed as a rather innovative and beneficial for the football training needs.

## 13.3 Marketing and Sales Strategies

In this study, three different marketing and sales strategies were identified as suitable for firms to use in the market.

### 13. 3. 1 New Product Branding and Positioning

Branding and positioning are central to product success carrying significant meaning for the new product. The brand must reflect optimism, vices, and reliability to attract athletes and those who

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play for fun. Promotional statements should direct consumers' attention to what makes the product different and special: for instance, real time feedback, portability, and incorporation of the option of mobile usage. Consumers should also be reminded how exactly the product can be of use to them, for instance, to help improve their shooting accuracy, or to be taken indoors. Exclusive marketing partnerships with prominent football related social media personalities and approval from famous football players can also help improve legitimacy and exposure. Introducing the product as a revolutionary tool used by football trainers in modern football practice can create the buyers' attitude towards the product when they are in the market for effective ways of improving their abilities.

### 13. 3. 2 Distribution Channels and Partnerships

The choice of distribution channels and partnerships are crucial to ensuring that the right product is reaching the target market in the most efficient manner. Some of them may relate to

online stores, general stores for sporting goods, and specific stores that are dedicated to sports. One approach is to target private sales for football development academies and clubs while demonstrating and selling team products in football schools. Other opportunities include working with the online fitness platforms and applications for football training, with which this business can broaden its horizons and offer its clients integrated solutions. Moreover, cooperation with distributors and retailers around the world can be crucial for expanding the presence in the international markets and, therefore, expanding the potential consumers' database the product might attract due to brand awareness.

## 14.0 Expanding the Product Line

### 14.1.1 Accessories and Add-ons

This is because extending the variety of a main product, for instance, by including counterparts and attachments will add value. Possible additional items include primary targets aimed at the main product, the rebound nets, and training cones. Another possibility is that smart accessories like moisture-wicking socks or special gloves that have sensors can give even more information about how the players are moving or improving performance. The availability of a set of complementary attachments ensures that a user may configure the training cycle in a way that is most suitable for him or her, thus expanding the product's appeal to other customers.

### 14.1.2 Why It Is Effective Minimizing the Level of Skill Required

It is Effective because offering customization options for the product for the intended users at different skill levels can be an effective strategy. New comers should practice fewer moves, and have programs that are guided to them by trainers majoring in the basics. Hence while the basic players may require simple drills which are almost similar to actual over head strokes; the intermediate level players may need more difficult drills that help in improving on the various skills and finally the advanced players may need rigorous training that mimics actual match conditions. Using game concepts for refreshing and also offering a multiple level of difficulty

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can develop the efficiency of the product and hence benefit each player.

## 14. 2 Worldwide Expansion and Accession

### 14.2.1 Tailoring to different Football Cultures

With a global expansion next comes the importance of honing the product to particular football cultures and training regimes. This would be identifying regional differences in choices, preferred techniques and ways of training. For instance, in countries where football involves more of tactic display instead of brute force, the product can offer technique and accuracy exercise. Another element that can help in ensuring that the marketing campaign is accepted is incorporating aspects of the culture of the targeted region into it. Thus an adaptation in its form as well as the type of promotion used for this beverage could enhance its chances of success as a

product in different cultural territories.

#### 14.2.2 Addressing Diverse Market Needs

Serving different markets means coming up with specific models geared towards particular categories, for instance the youthful, hobbyist and professional users. The segments are different and may comprise different users with different expectations based on features and price of products. For instance, a simplified version with basic equipment may be delivered to the audience of young players and individuals who play video games for fun, while the complex version, equipped with sophisticated tools for analysis and configuration, may target more experienced organizers and athletes from teams that participate in championships. This way the company is in a position to capture more of the market need by providing product options that are tailored towards the various needs of different consumers segments out there.

### 15.0 Health and Safety Considerations

#### 15.1 Injury Prevention and Management

##### 15.1.1 Common Injuries in Indoor Training

Since the growth will be global, involving modification of these products to fit the various football cultures and markets so that the players all over the world can for training aids that will enhance their performances. Finally, the idea that can be considered conceivable about the training process in indoor football is the gradual development of the conditions for training football players at all levels, with an emphasis on increasing the accessibility of such conditions and improving the quality of training processes and methodologies. On the same note, the football training indoors like we have discussed above has its advantages and some of the dangers involved with sports injuries. Some of the mishaps likely to occur during indoor trainings are stretches, pulls, and overzealous injuries. Injuries can result from this due to frequent repetitions when practicing specific drills, and/or awkward movements as well as possible contact with apparatus or other players. The injuries observed were predominantly

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overuse with muscle strains and ligament sprains common, mainly in lower limbs such as the ankle and knee since they quickly pivot, twist, and change direction during training. Furthermore, activities for injuries like tendinitis, stress fractures can occur due to pressure from rigorous training without the right amount of rest and replenishment.

##### 15.1.2 Preventative measures and Rehabilitation

About Measurers Against Injuries during Indoor Football Training Among the critical elements that must be taken in order to avoid regressing during training is the implementation of measurers that help prevent injuries during indoor football training. This includes dynamic stretches and mobility exercises that inform the muscles and the joints about the training load that awaits them by using motions that facilitate the circulation of blood in the muscles. This demonstrates how substituting strength and conditioning exercises into training programs can

enhance muscular control, and thus minimize the suspicion of strains and sprains.

This points towards the necessity for effective assessment and appropriate treatment in a timely manner to both avoid additional harm and to promote healing. Any acute injuries requires the first aid measures which include applying of ice towards inflammatory blue mark in the affected area and placing the infected area high from the ground in order to minimize the pain being endured. To help prevent complications and promote healing, it is recommended to follow the R. I. C. E. regimen (Rest, Ice, Compression, Elevation) for acute sprain or strain injuries. It will be sensible to consult a professional medical personnel for the complicated injuries or where basic first aid does not alleviate the situation.

Rehabilitation process goes hand in hand with the rehabilitation treatment and it helps to restore strength, flexibility and function to the player's injured body part. Depending on the kind of the injury, the kind of rehabilitation activity required must be understood and should be done based on the requirement of the individual player and then try to make the client work gradually returning to the field without much strain on the injured muscle. Motion, muscle-strengthening exercises and proprioceptive training, known as active physical therapies like range of motions, strengthening, balance retraining, and functional activities may help people with mobility and stability problems. Constant check should be conducted to ensure that there is progress in the part of the player, and necessary changes should also be made to the aspect of rehabilitation depending on the progress and the timeline of recovery.

In conclusion, the training in indoor football involves injury control and recovery in the course of the exercise. With preventive actions before an injury, correct biomechanics during the practice, and the effective treatment of the injuries as they surface, the players can reduce the extent and incidences of their injuries as they practice. Furthermore, an effective method to rehabilitate and restore his strength and skills is the continuation of the described approach to restore the athlete, to prepare early for the return to training and competition.

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## 16.0 Research Methodologies

### 16.1 User Surveys

The primary research involved a detailed survey of current users of indoor football shooting training facilities to understand both the current state of play and the potential for improvement. This study intended to capture data from a cross-section of various operational football participants, including first timers, learners and professional players. In this part, the information about the methodology, participants, and main topics of the survey are described.

#### Participant Information



The survey started with general background questions that various questions and answered to ensure the versatility of the participants. To identify the level of football experience of the participants, they were further required to key in their age, sex and football experience level. Respondents were asked about their age, which group them into under 18, 18-24, 25-34, 35-44, 45-54, and 55 and above; this made it possible to identify their training requirements during different stages in their lives. Gender was noted to pinpoint out any differences in training preferences and difficulties. Football experience was given in four groups: novice players, moderately skilled, well trained and professional level players so as to include each level of expertise. The frequency of football training being conducted was also documented as Shanghai Daily training sessions, Next training sessions, Sometimes- Rare random training, in order to determine how often participant conducts shooting practices.

### Current Training Practices

Participants were also asked about the current trend of football shooting training practice they currently engage on, especially location. Locations could be outside on a field, inside a sports stadium, at one's personal premise or any other place. This also allowed for the determination of the extent of usage in the different common training environments as well as any gaps regarding utilization of appropriate training environments. The survey also included questions which were to determine the means by which children practiced shooting indoors at home; this included using goals, shooting on targets, using the empty bare-feet technique, or through virtual systems. Some questions were designed to quantitatively measure the perceived utility of existing approaches to indoor training, regarding where respondents stand on the spectrum of very effective to very ineffective.

### New Indoor Training Product

The level of interest that participants showed for the new indoor football shooting training product and the requirement to develop this new product was established by asking the participants questions inquiring if they had ever used any specialized indoor training tools, and if they have ever used any of the shooting training tools described by the various participants. Concerning the importance of having access to effective inward training aids, the ratings given were representative of the desirability of new-fangled tools indoors training. Additional key questions focused on asking the respondents to pick the most important aspects that should be

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included in an indoor shooting product includes durability, accuracy feedback, easy setup, portability, integration with applications in mobile devices and cost.

### Response to Discussed New Training Techniques and Equipment

A survey was conducted with the intent of gathering specific comments with regard to the proposed features of a new product, to be named indoor football shooting training. To determine benefits, participants were asked the likelihood of their use of a product that provides: real-time feedback on shooting accuracy; adjustable difficulty levels; integration with mobile apps for tracking; and progress. These features were evaluated as very likely, likely, uncertain, unlikely,

or very unlikely to happen and depict the users' preferences and their level of expectation. Likewise, the importance of the various aspects of indoor training was rated to establish the priority of the aspects such as shooting accuracy, fitness levels, and motivation among others which are essential to football players when conducting indoor practice.

## General Feedback

The last part of the questionnaire allowed participants to provide their insights about difficulties that people experience when applying techniques for football shooting at indoor facilities. This question was designed as an open-ended one in order to explore certain difficulties that are faced by players, for instance, limited space, noise or lack of equipment. Subjects were also asked whether they believed there were changes they would like to make or some more features they would like to have in indoor football shooting training tools. These feedbacks were valuable for defining priorities of users that in turn helped to design better training solutions. Moreover, any comment or suggestion concerning the use of the method for conducting shooting practice for indoor football was allowed thereby affording users an opportunity to express themselves on the study.

## 16.2 Field Study and Interviews

### 16.2.1 Field Study

In this research, one of the tasks within its field study aspect was to observe and analyze the shooting of the Players of Indoor football under diverse shooting conditions. This comprised going to indoor sport facilities, youth development academies, and resident homes that are training facilities for these athletes. That is why while working on the given topics, we had an opportunity to focus on the practical aspects of players' training and the limitations which arise when shooting in an indoor environment.

While conducting these field visits, the researchers took note of space utilization, and the equipment needed by observing features such as halls used, equipment used, and the possibility of training drills to be conducted indoors. We also looked into the effects of lighting, floor space, and distance between the walls and the targets with regards to the aim and safety. Such observations can serve to highlight similarities and differences that are essential for the development of uniform overall conception about the entire spectrum of the practical concerns

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for indoor football shooting practice.

### 16.2.2 Interviews

Besides the field data, a set of semi-structured interviews were also carried out with the football players, coaches, sport scientists and equipment providers such as football boot manufacturers. These interviews were meant to elicit descriptive information on the observation, perception and requirement of those practicing indoor football drills.

In order to get a variety of views, players of different skills and age form a football team of

Under 12 years were interviewed. Instead, we discussed their own shooting experience indoors with focus on the problems that were faced, as well as the solutions made for these issues. This information proved useful in assessing practical applicability of the integraty indoor training approaches and defining their strengths and weaknesses.

This was helpful and helped gain insight on how effective particular training drills and equipment were according to coaches. They were able to talk about the role of repetition and how it can help on the improvement of a player's skills and gave advices on the features that they should consider when designing training equipment amenities for indoor practice with their players. Coaches and learners' feedback Section were very valuable in reviewing these proposed training methods and assessing whether they would be both feasible and compliant with coaching approaches.

Bespoke specialists in the field of the sports sciences involved their understanding into the physiological and psychological acclimatization of football training. They highlighted the key point of keeping the interest of the players during non-playing occasions and proposed the use of the technological advancements in order to facilitate feedback and analysis on the practices performed in doored conditions. This in turn informed the creation of a scientifically-backed training material and tools to support learners.

The data was collected through in-depth interviews conducted with equipment manufacturing facilities highlighting the innovations and sales aspects of creating indoor football shooting products. They offered insights into the type of materials to use and the methodology to follow in order to test the durability and the overall costs of the proposed solutions, before implementation in the market.

Introducing the results of the final investigations, it can be concluded that the combination of field observations and interviews gave a large and comprehensive dataset that allowed us to create new indoor football shooting practice methods and products. It is through the incorporation of player's practical experiences, coaches' knowledge base, and the scientific learnings as well as technical understanding of manufacturers that this study seeks to design well fitting and efficient strategies of improving effectiveness in shooting in indoor environment.

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### 16.3 User Personas

Using personas when designing the shooting training products meant that it was to understand the target consumer better. These are realistic examples of user types, summarizing their objectives, pain-points and training requirements. By formally defining these personas and relating each of them to certain issues and problems, we can better refine our approaches and realize the desired improvements in UI.

### Persona 1: Ali, The Aspiring Amateur

Ali is 20 years of age, a university student, and a huge fan of football. He is enrolled at a university and is a member of the university intramural football team, and he is interested in training his shooting the part of the football boot with his weaker foot. Ali needs to be more versatile on the field and look for ways in which they can get involved or produce good results during the actual games. Yet with all his class schedules and other commitments, he is unable to devote much time to practice. The space that is provided to him and for him to practice outdoors is also limited and, any number of times, comes in the way of a proper practice session. However, this is not easy given the fact that Ali leads a rather busy life with very little time to spare; nonetheless, he is keen on creating a training schedule. He needs a clear method and accurate machines which give him a possibility to practice shooting at home with the achievement of higher effectiveness.

### Persona 2: Maria, The Player of Her Youth

The essence of this paper is a researcher made subject, Maria, who is a 15-year-old high school student and a young footballer at a youth football academy club. Her short term aim is to improve her shooting effectiveness in order to become one of the players in the national youth team. Maria says she needs to work on the weakness because it will help her achieve Goals and pick wrong leg as an asset. As it has been said above, she harbors pretty fundamental challenges: firstly, she is unable to find spacious sites for training outside, and secondly, she spends much time at school and can practice only in the evenings. Maria complains about the absence of precise instructions for at-home shooting on her own since few guidelines are available that would allow her to master shooting within reasonable time and in her living space. She requires a multifaceted training solution that provides her with guidance and instructions on how to go about the task, the results as well as the capability to evaluate her course.

### Persona 3: The Weekend Warrior, John.

John is a 35 years old marketing executive with no prior HIPE, he occasionally plays football with his friends at the weekend. Frank's purpose is to continue practicing football and focus on shooting, although he has not actually played for a couple of years; he regularly engages in football workouts just for fun and to keep fit and company. Despite the connection John has a small garden at his house in urban area and lacks space to practice most of the times due to his

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working pressure. He is also dissatisfied with the absence of well-defined programs geared toward home firing practice that he would deem suitable for him. John wants something simple to use for trainer reminders that will enable him to practice regularly despite his tight schedule. Of especial interest are the tools that offer functionality to keep track feedbacks in addition to the way he progresses through the lessons.

Analysis

This shows us the general user persona interests which are the aspirations of our target users such as shooting techniques, weak foot training and regular practice. It also shows other similar concerns like the lack of yard space, time, and/or insufficient structure of Station contacts to aid at-home practice. This will help us in coming up with effective solutions that will suit these personas because we fully understand the challenges they go through. For example, developing training equipment and the pop-in nature of training equipment that is ideal for indoor training can reduce space issues. Generation of versatile training programs that incorporate signposted model with integrated real-time feedback to support users with limited practice time will also be useful. Furthermore, users will be motivated and productive through tracking progress features that will assist them in identifying how they are improving.

# Persona



Name: Ali Altaf  
Age: 19 years

Goals:



- Improve football shooting
- Get better at shooting with weak foot
- Establish a consistent training routine

Frustrations:



- Limited outdoor space
- Less time for practicing
- Lack of structured guides for at home shooting



Name: Ali Altaf  
Age: 19 years

To sum up, the user acting personas serve to give a rather clear understanding of the target market for the products used to practice indoor football shooting. By attempting to not only get to know what they wish to accomplish and what frustrates them when it comes to training in football this allows one to come up with a solution that will make their training better or help

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them meet their desired football dreams.

## 16.4 Solution Statement

In light of this we have embarked on creating this special training aid that we have christened Kick-it to help solve some of the challenges that faces football enthusiasts who want to practice

in shooting in enclosed areas. This tool is mainly aimed at starting, amateur, middle, and even highly skilled players who expect improvement in shooting accuracy, power, and consistency while playing and do not have a large outdoor practice site available.

This is due to the fact that Kick-it is in a position to eradicate most of the inconveniences normally encountered throughout indoor football training. It is a compact design coupled with the user-friendliness that enables one to setup the treadmill easily for use in different rooms, for instance, the living room, basement or a gym. It is especially useful since players may be unable to train in proper spaces most of the time due to space constraints.

The tool comes with a lot of features to alert the player about the efficiency of the shoot as well as the force it has been applied providing the player with a chance to correct it. Kick-It also has the characteristic of having variable mode of difficulty, which slowly gets hard for the user's improvement. This is particularly advantageous for those who have a preferred limb in football because this program provides specific exercises for the weak foot.

However, Kick-it links with the apps and provides a detailed measure of the progress made over time. Performance data and statistics can be tracked by individual players, goals set and even an individually compiled training schedule must be ensured, so that, the training appears organized. This feature is particularly useful for people who have minimum time to practice is that it helps the person use their time effectively.

In Kick-it manufacturing appealing and long lasting abrasion resistant synthetic material is used so it has capacity to use long time even used frequently. It also propagates the correct usage of the product and proper handling in a way that it reduces consumption of resources and protects the environment.

In conclusion, Kick-it is easy to use and can be considered as one of the most useful features for footballers who wish to improve their shooting accuracy during the indoor trainings. By focusing on particular areas that are important to individual players and the issues that may discourage them from practicing, Kick-it offers a complete learning system that guarantees consistent progress and success in the pursuit of one's goal to become a great football player.

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## 17.0 Design Criteria and Ideation

### 17.1 Design Objectives

The key design objectives for Kick-it, the training equipment for indoor football shooting practice, are centered on developing a high-quality, utilitarian, and durable product that will

appeal to football players of all skill levels. Such objectives serve to help a development team for a particular product so that the delivered end-product meets high standards of performance, durability, and user satisfaction.

### 1. User-Friendliness

Besides setting up and ease of use the primary design consideration is aimed at the possibility to store the training tool. Kick-it cannot be complicated in any way and should be easy to use such that anyone will be able to play it with no need for a very detailed explanation. Of particular importance will be the ability to assemble easily, with no complicated instruction other than assembling and no time-consuming preparation. Beside, it should be portable, since the users may need to carry it around, as well as use it in different surroundings, inside the households, from the living rooms to the garages.

### 2. Effectiveness in Training

Recommended, Kick-it must alter its operational approach, which involves providing correct shot feedback to players and ensure they practice. This tool will have incorporated-shooting indicators, power, and trajectory following technologies. These features will also be valuable for real-time decision making and immediate feedback to the users as to either improve or not a particular technique. The tool will also be made to have varying levels of difficulty that can be set, making it possible to provide a progressive training regime. This flexibility helps pediatric patients and advanced level players will be able to reap from the use of this equipment.

### 3. Durability and Safety

Oh and the frequencies or the pace at which it would be used has to be daily or even more than that, so the design has to be such that it can support these frequencies. To ensure durability of the tool and minimize the frequent expenses on replacement of damaged portions, best quality finely finished and strongly built material will be used. Also important to note the 'Safety' The tool will be produced without sharp edges and these will come with non-slip bases and will have strong structural foundation so that there will be no cases of injuries during usage. Pertinently, it

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is essential to ensure the product is safe to be used indoors especially in houses with children as they are most vulnerable.

### 4. Space Efficiency

Taking into consideration the indoor application and mobility of Kick-it, it has to be compact when it is being utilized and compact when it is not. It will also be lightweight and possess features such as foldable or collapsible parts so that will be easier to store in places where space is a constraint such as closets or under the bed. Such compatibility is important for people who have limited space for riding indoors and desire a product that doesn't take up significant floor

space.

## 5. Sustainability

Kick-it will also incorporate environmental factors in its design and manufacture it by using environmentally friendly components and practices. Recyclable and biodegradable materials will always be preferred in the course of the implementation of the activities involved as per the environment conservation policy. Furthermore, in relation to the sustainability aspect, the design will not allow for easy replacement of the materials that make it so that it will not be constantly replaced after a while.

## 6. Aesthetic Appeal

Lastly, the Kick-it will also focus on aesthetic value since it will be an electronic product to be placed in homes. Contemporary look will be utilized in order to make the tool as unobtrusive as possible, but at the same time make it as attractive as possible within any interior setting. The color scheme and the overall outlook of the kebab grills will be so developed that it would be able to pull consumers and match the interior of homes as and when consumers decide to incorporate the kebab grills as a part of their home accessories.

## Conclusion

Therefore, based on the course context and identified needs of users, Key concept design objectives for Kick-it are stated as follows: The goal for Kick-it is to ensure that the training tool is functional, efficient, long-lasting and environmentally friendly. With these ideas in mind, Kick-it intends to give football enthusiast an exhilarating opportunity of free shoot indoor trainings that assist them practice and overcome the real world problems of practicing indoors. These objectives put in place preconditions that would help Kick-it not only meet user expectations but also gain a reputation for being an essential tool in football training.

## 17.2 Design Ideation Process

Both Kick-it goal planning and design brainstorming were very intensive and extensive with the special concern towards developing an effective, practical, and durable indoor football shooting training tool. This phase was very important in getting down from the thinking about the

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concepts to understandable designs. The ideation process comprised several key steps: The process of idea generation and design includes a set of problem-solving activities called ideation techniques or design thinking tools such as brainstorming, concept sketching, prototyping, and iteration.

### 1. Brainstorming

Ideation started with workshop which involved designers engineers, sports science and footballers during the early stages of design. By the end of these sessions, organisers sought to



produce a broad scope of ideas and possible solutions based on the framed user needs and design objectives. In brainstorming sessions, participants were free to come up with different ideas and options related to the targeted product that encompasses functional, ergonomic, material and visual perspectives. Creative tools like mind mapping of the concept and SCAMPER creativity technique (Substitute, Combine, Adapt, Modify, Put to another use, Eliminate, Reverse) were adopted and applied to generate many concepts at Apogee.

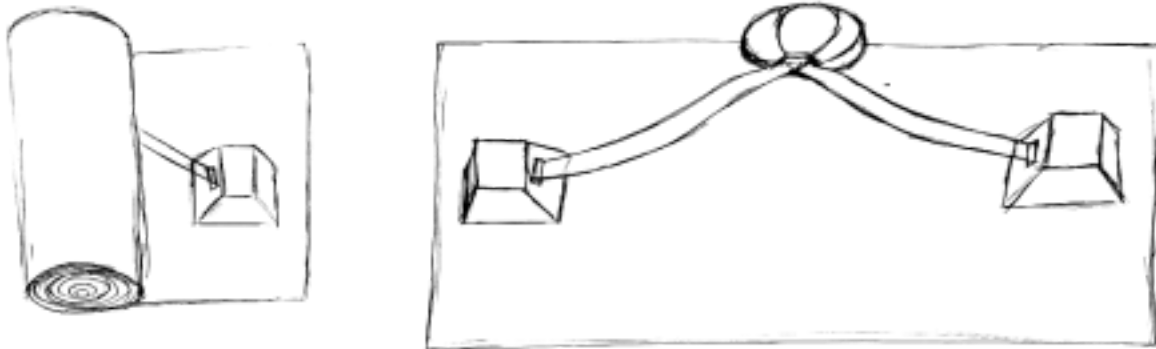


## 2. Concept Sketching

After the brainstorming meetings, the ideas that were proposed were then taken through the process of transforming them into concept sketches. These were more like graphic images conveying the possibility of designs and therefore aiding in the process of sharing or coming up with improved designs. Through concept sketching, the team was able to identify the form, the features, and the configuration of the training tool that best suits the corporate training program. Several factors are used and they include the general appearance, the dimension, the way that the furniture can be changed in size, and the way that technology is incorporated in the furniture.

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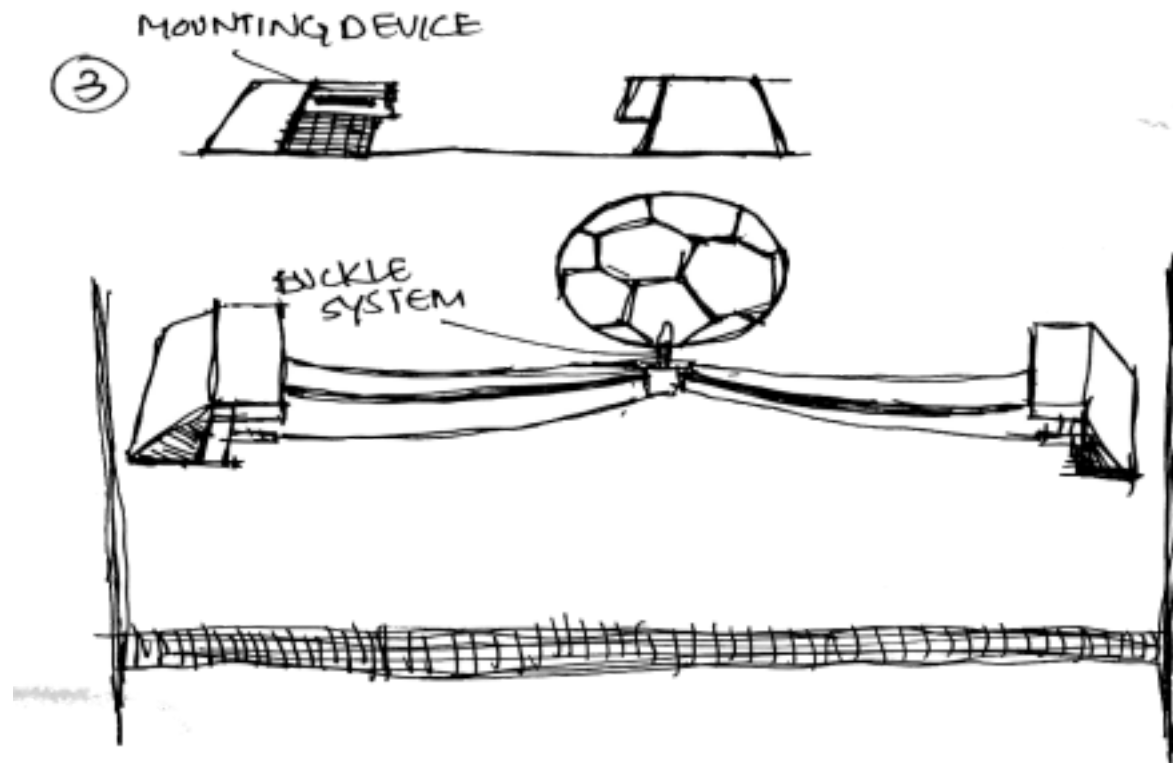
Sketches were assessed against criteria involving practicality of application, probable efficacy and compatibility of user requirements. In this phase the Croco Design collected feedback from the football players and the coaches to make sure that the designs for the clothing line are comfortable and fits their expectations.



### 3. Prototyping

Subsequent to coming up with several firmer concepts while sketching, the next move was to build prototypes. Implementation was a process of creating tangible and computerized models that are physical for testing the utility of the training tool. Two types of prototypes were developed: The types of prototypes are known as the low Fidelity or the High Fidelity.

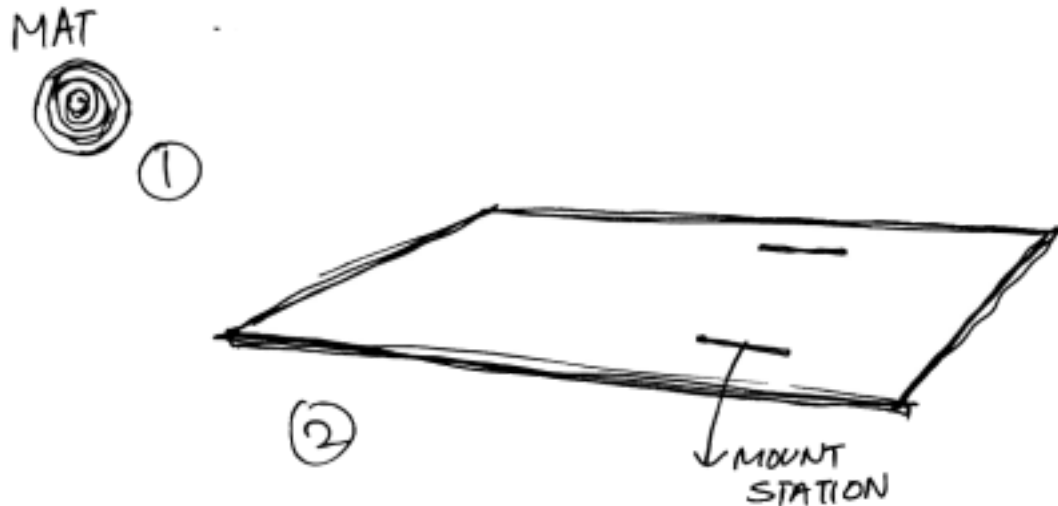
**Low-Fidelity Prototypes:** Initially, these were built using less complex materials that can be obtained easily in stores such as cardboard, foam and plastic. They enabled the team to at least move through and experiment with some of the most rudimentary concepts and decide on ergonomics and architectural problems that they encountered along the way. The use of low fidelity prototypes was vital at this stage of testing since the designs allowed simplest practical implementations to be tested for their practicality.



High-Fidelity Prototypes: The second stage involved constructing the high fidelity prototypes following sophisticated development processes and methods like 3D printing and CNC machining from more precise materials as compared to the earlier models. These prototypes were very realistic and consisted of practical items such as sensors and feedback devices and it's look alikes. Advanced prototype was employed for more intense evaluation such as efficiency evaluation and utilization of "think- alum" technique. Another aspect of this stage was to subject the design to actual usage test in order to check on the durability of the design and its safe use in general use environments.

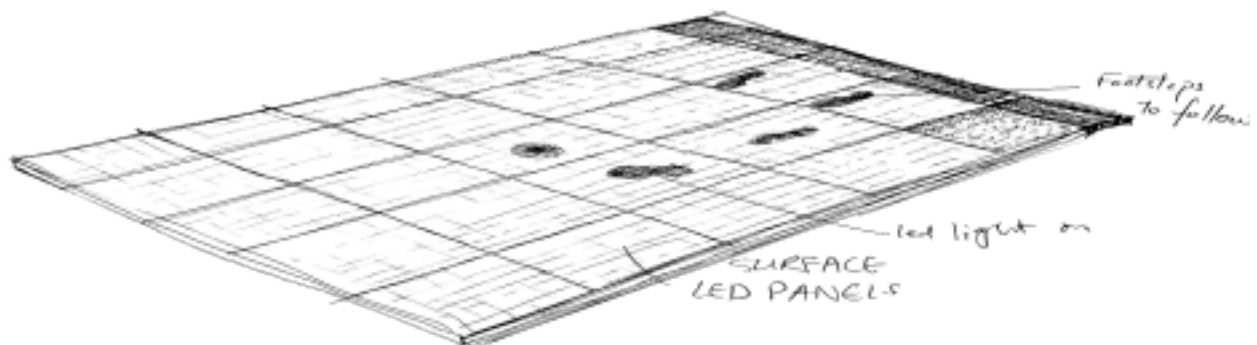
#### 4. Iterative Refinement

The prototyping phase was then succeeded by iterative improvement where the design was updated over and over depending to the test results with feedback from users. The disclosures indicate that this process was carried out in cycles where the developers prototype, test, and modify the IT product. Each iteration was based on issues experienced during a test phase, these topics could be refining the feedback given or making the couch more comfortable, or the proper incorporation of technological aspects. Organized feedback from the tool users which consisted of football players and coaches where valuable in this phase as they offered insight in the value and effectiveness of the tool.



## 5. Technology Integration

Speaking of the design ideation that took place during the project, its continuation, one should say that another important aspect was the utilization of technology. The team discussed how sensors, which can be mounted on equipment, mobile applications, as well as feedback systems that operate in real-time may be integrated into the training tool. They had to consult with IT professionals to design and experiment with arrays of electronic systems. The intended application was to achieve an unobtrusive nudging interface that would enable players to know an instant outcome of the shooting as well as monitor their improvement as they played. To guarantee success in the integration of the technology solution, the technology incorporation process was cyclically optimized to ensure dependability, simplicity, and cross-platform compatibility.



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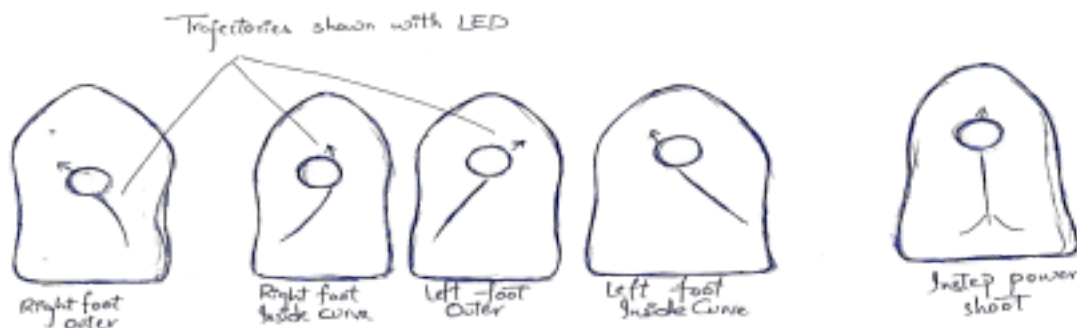
## 6. Material Selection and Sustainability

During the brainstorming phase of the project, equal attention was paid to material selections and environment impact. The team investigated on the kind of materials to use and underwent testing

to get the most appropriate material as per the durability safety and even their impact on the environment. The electronics and materials used in the product's design were also environmentally friendly like recycled plastics and bio-degradable components first preference. Further, throughout the designing of the product, manufacturing processes were assessed based on their impacts on the environment with specific reference to wastes and energy usage.

## 7. Aesthetic Design

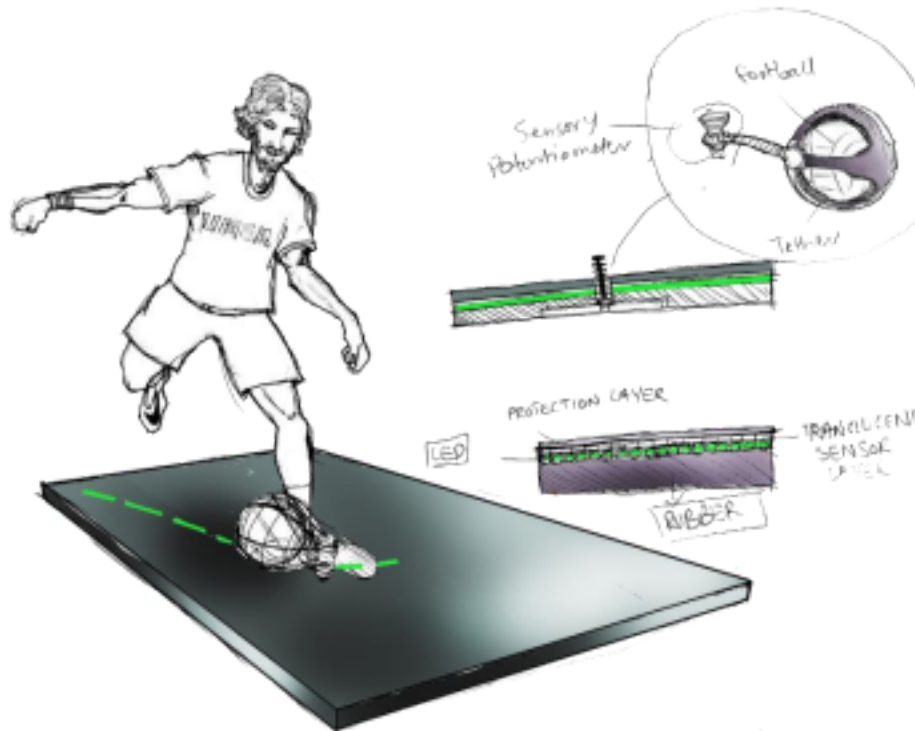
Another important aspect to consider during ideation stage of Kick-it was the aesthetic look of scooter. The team considered the importance of having a functional product, while at the same time taking efforts in making it aesthetically well-designed. Different items like paint and biochemicals were used to look for colours, forms and textures making certain that the tool could pleasing look and Interweaved into indoor environment. There was also an intent to come up with a product that users will take pride in displaying and using frequently.



The idea generation for Kick-it entailed certain different steps and stages including creating ideas, sketching the ideas, making models and refining the devised ideas. The team incorporated

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basic user feedbacks and expert feedbacks, technologically incorporated advanced technologies, and incorporated sustainability into their product design to come up with a compound indoor football shooting training tool. Such a thorough thinking stage guarantees the safety of the final product as the key consumers – the football ones – will receive a great training tool along with the fun time.



## 18.0 Final Proposed Solution

### 18.1 Specifications and Features

Therefore, the specifications and the features of Kick-it, an indoor football shooting training equipment are well-engineered to cater for the various groups of football lovers. In this section, guidelines of various characteristics of Kick-it include flexibility, ease of use, effective, and technologically advanced training tool is explained.



### 18. 1. 1 Physical Specifications

#### Materials:

**Frame:** It has a sturdy aluminum frame, while at the same time being relatively lighter in weight and is of superior quality. The surface of the aluminum is consequently polyurethaned in a fashion that doesn't permit slippage when in use.

**Target Area:** The target area is constructed from the high-density polyethylene (HDPE) material which makes the target resistant to impact, not to mention the material will not deform when subjected to multiple shots.

**Sensors:** To guard the integrated sensors, the casings are coated with polycarbonate material to enhance the durability aspect while recording accurate data.

#### Safety Features:

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**Rounded Edges:** No sharp corners are present as they pose risks and threats to the lives of its

inhabitants.

Non-Slip Base: It also provides rubber pads on the base to avoid slipping while ensuring it stands firmly on the floor type.

### 18. 1. 2 Technological Features

Integrated Sensors:

Accuracy Sensors: Targets are laid well within the target area with the use of high-intensity optical systems that measure the level of precision. These are essential because they are used to note the precise point on the receiver where the bullet impacts and shooting accuracy.

Power Sensors: Other sensors detect parameters of each shot like power which will make users have some control and perfect their shooting power.

Real-Time Feedback:

LED Indicators: Lights involving the general vicinity of the target give feedback on the precision and strength of the shot. The color and the patterns that they possess are the signals that show their performative abilities.

Audio Feedback: An integrated speaker supplies timely and encouraging sounds during similar training, to lively up the process.

Mobile App Integration:

Bluetooth Connectivity: Kick-it synchronises with possible mobile application via Bluetooth enabling the users to monitor their performances in real time.

Performance Tracking: The app features detailed count of shots, shot accuracy, power, and frequency of the shots taken. Couch related data: Users can see the history of their training process and set the individual training objectives.

Training Programs: There is thus comprehensive training plan which has features that focus on different levels of skill and can be used in certain goals. Included workouts include guided drills, challenges, and advice from professional trainers.

User Profiles: It is possible to have accidental additional profiles which allows using the tool by several people while keeping their progress in the profiles.

### 18. 1. 3 Usability Features

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Adjustable Difficulty Levels:



**Target Size Adjustment:** The size of the target area can be adjusted to make them harder or easier and make the game challenging to the users as they continue prat Black-Boxing.

**Force Sensitivity:** Mel is capable of changing the power sensors' sensitivity, thus making it possible for users to determine their proficiency levels in the game.

**Portability and Storage:**

**Foldable Design:** Kick-it has an easily portable and collapsible construction to be able to easily fold when not in use and can fit in places like closets or under the bed.

**Carry Handle:** As stated, this unit has a handle that is incorporated in the design and this makes it convenient to carry it from one area of the premises to another, or between the home front and training areas.

**User Interface:**

**Control Panel:** With regards to its interface, it consists of a basic control panel where users can initiate training sessions, make necessary settings and access the mobile application without difficulty.

The physical characteristics and technical attributes of Kick-it are intended to provide an all encompassing rehearsal of the overall indoor football shooting experience. Using sophisticated technology in its construction, friendly in its design and the highly durable material incorporated into Kick-it ensures that it suits football lovers irrespective of their playing ability. Additional features such as an incorporation of the tool with a mobile application, real-time feedback systems, and customizable settings all contribute to the effectiveness of using the tool in making the training process engaging and healthier, thus making the tool suitable for use in a variety of indoor spaces and owing to its portable nature as well as incorporating safety features.



When the product turn on it whistles. Upon hearing the whistle the player kicks the ball. Since the ball is tethered to a load cell, upon deflection the load cell measures the force with which the ball was hit. The tether is made of resistive band to dampen the rebound of the shoot. A 9 inches by 12 inches rectangular piece of 12 gauge metal sheet is used to which the tether is hooked. The force is displayed on a screen as well as through LED strip. The speaker also gives feedback according to the power of the shot. The product is linked with the mobile application to help guide the user about different shooting techniques and how to perform them. The app also tracks the progress of the user's shooting capability and allows the user to compete against their friends.

## 18.2 The Form

The shape and design of Kick-it is a necessary component which determines it as to features of usability, the outlook and usefulness as an indoor football shooting practice aid. Kick-it has therefore been designed with respect to the above factors influencing the design of the product such as ergonomic designs the interaction and integration of technology into the product.

Overall Shape and Structure:

Compact and Modular Design: Kick-it has a smooth structure which makes it easily blend into different interiors all over the society. It is also characterized by a high degree of modularity, which makes it possible to dismantle and transport structures quickly. But the small size of the

Ergonomic Layout: They also follow ergonomic principles to allow users to use the design for manageable and comfortable periods. The position of the target area is also variable in terms of the height of the area and the angle in order to suit and cater for different trainees and approaches to training. As a result, this flexibility is critical in the development of a competently individualized training.

Target Area:

Visual Targets: They have several domains based on the visual difference in the coloring of the area and it determines the level of accuracy. The zones are painted with figures and different colours and are numerically numbered in order that the users can have a easy time when targeting them and looking at their efficiency. This particular design element makes the users target given areas, thus improving precision training.

Dynamic Feedback Interface: Circuits of LED lights surrounding the target zone enable them to react with vivid light displays. Bright lights which flash to reveal different colors and animated programmes depending on the accuracy and power of the attempted shot gives instantaneous and pretty obvious feedback. Other than that, it also enables the users to easily comprehend their performance and maybe adopt some relevant changes also.

User Interaction Points:

Control Panel: There is a compact control panel on the lateral side of the training tool that can be used to start sessions, set parameters, and link the application to the user's smartphone. Some of the advantages include large buttons, and well-labeled which allow users even without proper technological understanding to navigate through the device easily.

### 18.3 Product Aspects and its working

The product form elements and functional characteristics of Kick-it, a training device to perform indoor football shooting practice, are systematically planned to offer realistic and functional training experience. Kick-it consists of essential parts such as an aluminum frame, the high density polyethylene target area, sensors of precise accuracy, control panel with an incorporated panel and a smartphone application interface. All these components contribute in providing force feedback for accuracy and power of shots, the LED indicators and audio feedback and data analysis through the mobile application.

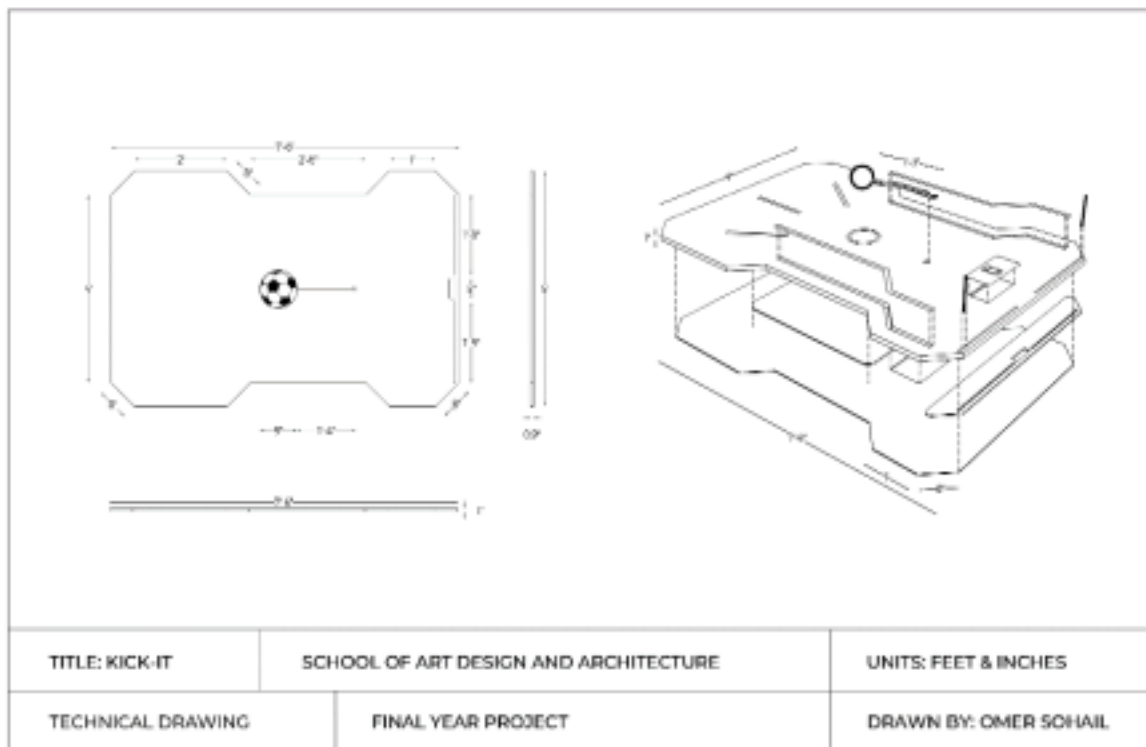
We get an understanding of how Kick-it functions by going through its working stages, that is during setup and initialization processes, the height and angle at which the device is set and encouraging users to adjust the sensors for accuracy. While exercising, users shoot at the target part of the training, and sensors identify the place of impact and force of the shot. Information is feedback to the user through simultaneous graphics with sounds guiding the user to correct his or her actions thus enhancing shooting competence.

Following the session, the information received from the sensors is actually sent back to the mobile application where it is not only processed but also presented in a more digestible manner. The program allows users to monitor the training over the time, establish individual goals and objectives for specific training and follow the training plans and regimes corresponding to the users' training level. The app also contains material for feedback, which contributes to the reception of new knowledge and helps provide constant development and improvements in the necessary skills.

In conclusion, the product features and the working principle of Kick-it are aimed at including football lovers in a one-stop and exceptional training aid that meets their versatility and performance. Using the concepts of Transportable Multi-Dimensional Sensor Suite, real-time response and data analysis, Kick-it provides complete training solution for indoor football shooting and offers a client the means to achieve his or her maximum potential.

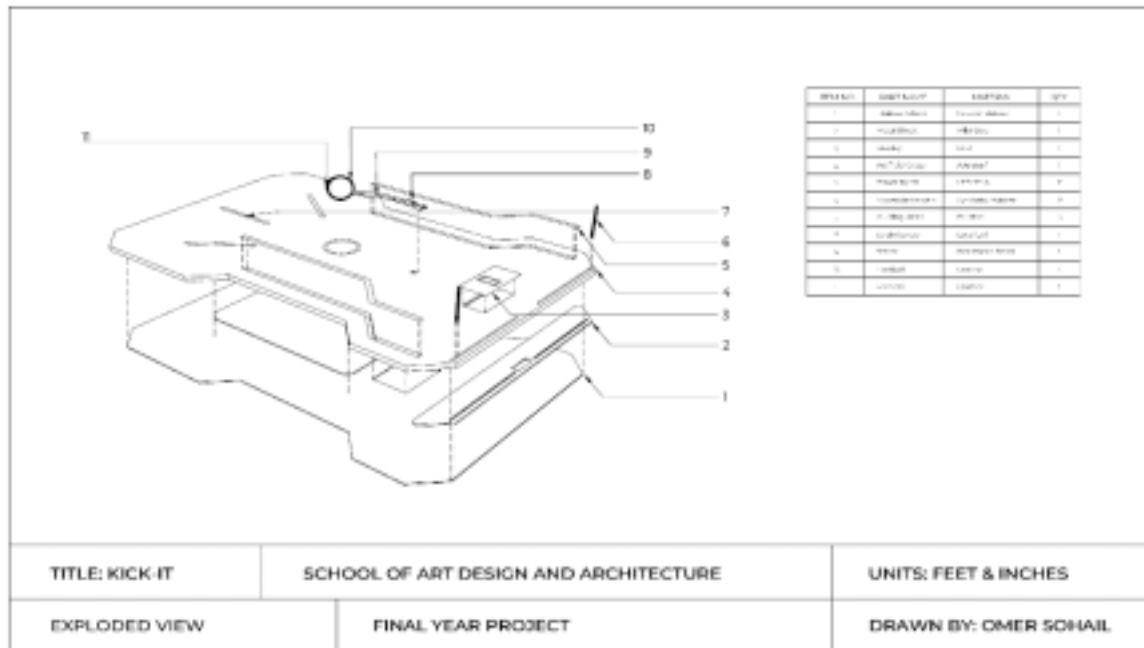
#### 18.4 Product Standard Dimensions

Regarding the standard dimensions of Kick-it, the outline is presupposed to meet the needs of functionality as well as easy transport. It mostly slightly measures 3 feet tall, 2 feet wide. In terms of depth, the figures are given as 5 feet which although not very shallow, should be deemed sufficient to support indoor tables.



This design makes sure that the interior tool is not large and thus occupies a small space in the house, for instance, in the living room, basement or the garage. Also, Kick-it is a bit heavy and measures 15 pounds, thus offering good stability while remaining largely portable. This weight

gives users the ability to manage the tool in a way they wish, be it carrying it to a training session, or after training when it has to be put away. These standard dimensions ensure easy usability by everyone, including children; in fact, Kick-it's versatility ensures that users of all ages and skills can effectively employ it as an indoor football shooting training aid.



## 19.0 Prototyping and Usability Testing

During the development life cycle of Kick-it, the process that of prototyping and usability testing was very critical in enhancing or modifying the product to fit market standards, this paper seeks to holistically discuss the life cycle of Kick-it application. In this phase, the use of printed paper based prototypes was done alongside with the electronic prototypes, referred to as low-fidelity and high-fidelity prototypes respectively, in an aim of assessing different design concepts and interactive features. The physical mockups deployed in the first study included low-fidelity prototypes, which were assembled from cardboard and foam so that the key concepts and ergonomic factors could be examined before creating high-fidelity prototypes. These prototypes were used to unearth initial design issues and help determine the form factor and interaction points of the film leaflet. After the initial colour mock-ups, real world high-fidelity mock-ups were designed and built out of more realistic material and included sensors and LED lights. These mock-ups were as close to the actual product in terms of design and functionality as

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possible and were tested based on their functionality, as well as the experience of the subjects when using the product, and their sturdiness.

During the usability testing, participants' age and skill level ranged from amateur football players, both young and old, football coaches, and other sports fans interested in the given topic.

The actual procedures involved the participants being required to make a concrete usage of the prototypes in training simulations to offer the perceptions on aspects like comfort, simplicity of use, preciseness of the feedback mechanisms, and the overall satisfaction. Their experience and suggestions were crucial in the process of pointing out the deficits and enhancements for further cycles of rediscipline of the design.

During the prototyping and usability testing stage, an appraisal was made involving different cycles to assure that the information collected from the usability test cycles will influence the subsequent design cycles. ITERATIVE PROCESS: This had a benefit of continuously improving on Kick-it so that the final product became an optimum one that effectively delivered a rich and engaging training process. The feedbacks and findings collected from testing sessions ensured Kick-it was optimized to achieve optimum usability and functionality and offer users optimum satisfaction. Finally, the prototyping and usability testing phase: this last activity was fundamental in ensuring that Kick-it is an effective and user-friendly indoor football shooting training tool.

### 19.1 System Usability Scale

When evaluating the overall usability of the Kick-it application, the feedback used was the System Usability Scale (SUS), which yielded a very decent score of 87.08. The SUS assessment tool- which is commonly used to evaluate the usability of software and applications-, provided a cumulative score well above the initial benchmark of 68, implying that the application exhibited impressive performance during user-tests. S.No 20 with a high SUS score demonstrates the adequacy of the Kick-it application in providing enhanced usability and understandability of the application for football fans involved in indoor shooting training.

Nevertheless, following an analysis of the total SUS score, there are several overarching conclusions that can be drawn based on the usability testing. There were highly positive results displayed by the application to show high usability characteristics but still there exists potential avenues for enhancement of its usability in order to serve a number of target audience types successfully. One insight that may be learned is to improve the accessibility to make it easier for low-skill computer or physically challenged visitors. Moreover, adjusting the designated interface more precisely and expanding or modifying the organizing paths of user interaction could improve the users' experience and the flow of the overall interaction.

Furthermore, the feedback received during usability testing pointed to the necessity of providing options and options for customization and to give more preference to the options and features that can be oriented towards training of the user an individual approach. This way the needs and expectations of the numerous users could be effectively handled in a flexibly manner by the it

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enhanced Kick-it application.

Overall, the SUS score was highly favorable , with an average score of 87 out of 100, despite 'Kick-it' application. Overall, the analysis show indicative of a good usability performance with

value 08 to enhance the performance. By deploying these improvements, the application will further develop and progress, therefore, will remain pertinent as a favorite choice of the great number of users for the indoor football shooting training.

## 19.2 Challenges and Opportunities

There are several ideas and opportunities that were discovered while developing Kick-it and these ideas were used to provide further refinements in the product. Bringing football to the shooting spot has been among the greatest challenges and because of this issues such as steadiness and the comfort of the various people using the platform have to be well understood. Furthermore, learners with the right run-up also faced challenges when moving off the surface as the research also showed that adapting from the jump surface to the run-up presented challenges when constructing the structure.

Additionally, the feedback received highlighted that the width of the platform was inadequate in supporting a great run-up, thus giving the player insufficient impetus when making shots or hits. There was another problem in the aspect that players are seeking the extruded hook carefully and it caused discomfort when using it and potentially threatening their safety. In addition, the design of the elevated platform had issues concerning its intuitive aspect of the landing experience, where some participants felt uncomfortable.

However, these were issues that could be actually seen as challenges and changes that need to be made and thus bring about innovation. Furthermore, it was evident that by responding to feedback and developing improvements to the Kick-it design, possible optimizations of the web application's usability and performance were identified as well. There was for instance an opportunity that called for a change in the cross sectional shape of the product to increase its overall width to accommodate a better strip for the playing players during the run ups.

Reducing the hook height to maintain its flatness was noted as one way of avoiding a situation whereby the hook causes discomfort or poses a safety threat during landing. Also, the change in materials used in kicking in Kick-it provided a unique chance in making the surface union for the players to kick the ball with so much force and comfortably.

Additionally, the inclusion of a swivel system in the position of the tether was a chance to eliminate the issues in relation to tangling and enhance the user-friendliness when conducting the training sessions. The following design iterations derived from user feedback and evaluation would follow a similar strategic plan and process for overcoming observed inefficiencies and/or leveraging identified strengths to improve the performance and functionality of Kick-it as an indoor football shooting training aid.

## 19.3 A/B Testing

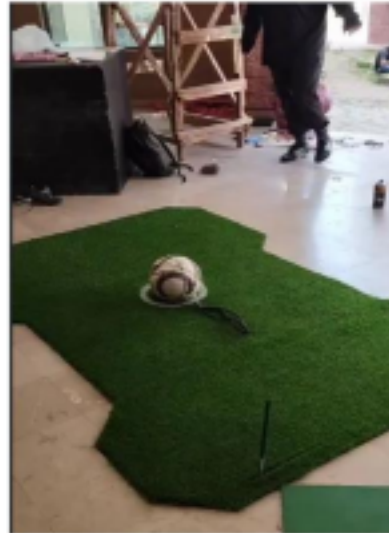
Players preferred v1.1 over v1.0. Smoother transition from floor to mat in v1. 1Additional feature of adding target sticks was loved by the players in v1.1. The hesitation in kicking the ball

with full power on v1.0 was no longer seen in v1.1

# Testing

## Product v1.1

Most users were much more satisfied with this version. A few wished for the tether to be longer



# Usability

## Testing

### Product v1.0



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20.0 Conclusion

20.1 Conclusion: Overall Assessment

The review of the advanced technological innovations, theoretical and practical applications, and shooting drills in indoor football training have revealed specific developmental changes to the training process. This paper presents how contemporary technologies such as virtual reality,



smart ball, and wearables helped to enhance the shooting skills practice. Techniques in Training based on Teaching Methods learnt in Educational Training Principles and newly developed coaching techniques compels training to become not only competent but also fun. Examples draw from clubs, academies and players where the product has brought positive change and advancement at the youth, club and international level. A comparison of the training suggestions presented here with the practices of other sports and knowledge drawn from various fields can provide helpful information for improving football training. Initial and Future Considerations for Training Indoor Football In the context of the observations, the future of training indoor football should be viewed in terms of further utilization of new technologies and the constant development of new ideas and approaches to training exercise for comprehensive, effective and easily accessible.

## 20. 2 Future Development and Research Possibilities

The current research recommendations should be aimed at the implementation of future empirical investigations that should investigate the long-term effectiveness of indoor training products and methodologies. Understanding the psycho-cognitive processes of indoor training would therefore create added understanding as to extent to which controlled environment can affect a player. In the same regard, it is possible to consider opportunities of using AI, machine learning, and augmented reality perspectives in training programs that may offer the new paradigm of the personalized training approach. Moreover, in terms of practical significance the changing market and the emergence of innovative and new training equipment require training equipment designers to constantly innovate on their products. In addressing these areas, it is hoped that researchers/practitioners can assist the dynamic process of football's training development and make available the necessary tools and relevant opportunities for players at various levels to maximize their abilities.

### 20.2.1 Cross-disciplinary research opportunities

The factors we discussed in this case regarding the development of indoor football training products entail cross-disciplinary research opportunities. A multidisciplinary approach to addressing sports practitioners' training needs requires the interdisciplinary collaboration of sports scientists, engineers, psychologists, academics, and educators. For instance, engineers may collaborate with sports scientists to invent better, specific sensors and analytical instruments;

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meanwhile, psychologists can help with the determination of motivation and mental toughness, which would be helpful further in the training process. Furthermore, the ability to cooperate with academic institutions means that the teaching strategies implementation may reflect the best practices of teaching and learning, thus fostering enhanced learning and development of skills. It can also look at the features of technology from other fields that may relate to indoor football such as biomechanics and human computer interaction The possibilities of other training tools for indoor football training can thus be further expanded.

## 20. 3 Final Thoughts

### 20.3.1 Reflections on the Research Journey

Some Lessons Learned Over the course of researching the practices involved in training for indoor football, it is noteworthy to identify that there is a vast potential for further development within the given field. Thus, the technological solutions, teaching strategies, and solutions discussed in the reality show have described the potential of such tools for changing player's development. This research has highlighted the need for a comprehensive training approach, seeking ideas from different domains for designing and developing interactive and effective training solutions. It has also highlighted the continuity of innovation as the area of sports technology has been fast-changing, hence more research needs to be done. The essential contribution has been made by researchers, practitioners, and stakeholders in the industry to support this advancement, it will also be useful to note that the future progress depends on the cooperation between them.

### 20.3.2 Vision for successful indoor football training

Training of indoors football players should embrace highly advancing technologies and culture of innovation. Experts have affirmed that with progress in artificial intelligence, machine learning, as well as augmented reality, it will be possible to provide learners with personalized, context-aware, and gamified training models. The gains of these technologies will be that player training will receive real-time feedback, and this will increase the speed at which techniques are acquired while improving performance.

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