TEAMPLAYER

BUSINESS PLAN

PREPARED FOR :

Centre for Innovation and
Entrepreneurship

CONTENTS

EXECUTIVE SUMMARY

⫸ Opportunity

TeamPlayer's mission enable VIPs to access and follow the action of live football matches using audio description technology based on established AI tracking software. Our focus differentiation strategy gives us first mover advantage in a market where simple radio connections experience a lag against real-time action and limited competitors are currently only offering tactile alternatives to audio description.

⫸ Industry Analysis

- 132,225 people identify as visually impaired football fans in the UK
- Every year 67448 tickets are sold to visually impaired fans across the Premier League, EFL Championship, EFL League 1 and EFL League 2 and this could increase to 164623 if matches were made more accessible.
- Assistive Technologies for the visually impaired was valued at $799.21 Million in 2020 and is projected to reach $1,364.57 million by 2028, growing at a compound annual growth rate (CAGR) of 6.92% from 2021 to 2028 (Assistive Technologies For Visually Impaired Market Size And Forecast, 2022)

⫸ Target Market

We have two target consumers:
1. Visually impaired football fans who already attend live matches and struggle to fully engage with the atmosphere because they cannot follow the live events of the game.
2. Visually impaired football fans who would attend if the game were made more accessible.

⫸ Strategy

Our services rely on video footage provided by a third-party broadcaster. Our first three years focus on building our customer base within a Sky Partnership, capturing both target consumers for popular men's football league matches in England and Wales.

- By Year 3, we will have captured £473,324.04 market value
- By Year 4, our balance will be over £1 million

Our biggest risk is technical failure. We will mitigate this with technical consultants to ensure the product's quality.

EXECUTIVE SUMMARY

⟫ Finance and Funding

The TeamPlayer Box is a one-time purchase set at a price point of £25, which has an 87% profit margin. However, our main profit is made through selling audio description for £2.50 per match.

The business will break even in Month 30 on £396 EBITDA, generated from audio description gross sales of £49,682 from 19,873 AD streams per month.

Key Costs:
- Box production cost: £3.30.
- Total start-up cost is £3640.
- Yearly cost of our overheads is £137,268.

We have identified a minimum funding requirement of £200k primarily due to the expensive overheads. Given the social benefits of our enterprise, we can attract investment through grant funding and innovation competitions. We would consider angel investment opportunities, sharing up to a total of 20% equity of our business with any investors that came on board.
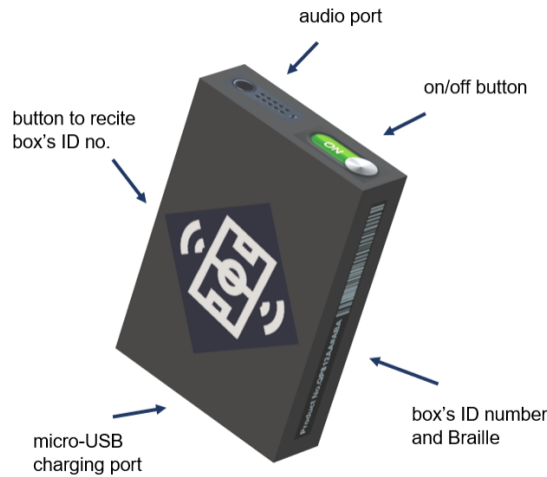
⟫ The Company

TeamPlayer is a social enterprise which wants to make a meaningful difference to the visually impaired community. Our aims are: 1) value over profit, 2) empathy in ethics, 3) open working environment.

⟫ Partners

Our network already includes visual impairment charities and medical research organisations, such as RNIB, Blind Veterans UK and 4sight Vision Support.

TEAMPLAYER

audio port

on/off button

button to recite
box's ID no.

box's ID number
and Braille

micro-USB
charging port

Hardware

We prototyped a variety of designs but found that a small box device was the most accessible solution, because it can be handheld or loosely hung around the user's neck.

The first version of our product will have a simple on-off button, a micro-USB port for the charging cable, a place to plug in your own headphones and a wheel to adjust the volume. Each box has a unique code, which will be made accessible to the visually impaired user by:

· A large, clear font on the side of the box
· Braille also on the side of the box
· A button on the side of the box which recites the code if headphones are connected
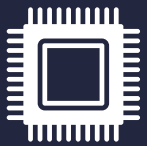
Go to our
accessible website

Type in your box's
unique ID code

Purchase AD for
the match

Listen through your
headphones

Software

The core of our service is a software that provides updates of match events to the user with an imperceptible delay.

The TeamPlayer database will store analysis of the past football match recordings, containing all possible moves and actions that a player could take. This will be developed in collaboration with both visually impaired and sighted football fans, who are crucial in pointing out all relevant information.

Rather than requiring the football stadiums to develop new infrastructure, we will use AI and Machine Learning algorithms to process the raw live video footage of the match. Using pattern recognition, optical flow and motion estimation, the software tracks the ball and the players' positions on the pitch.

The processed video footage is then compared to our database. The software tags each live action accordingly (e.g., "touch" or "score attempt") and predicts what information the audience would like to hear using statistics and probability. Finally, the software output is converted from text to audio by text-to-speech technologies and returned to the device user.

CORE VALUE PROPOSITION

KEY VALUES

132,225 people identify as visually impaired football fans in the UK

The "atmosphere of the stadium" is ranked by 91% of EFL fans as the most important factor in creating a satisfying matchday experience (EFL, 2021).

Every year 67448 tickets are sold to visually impaired fans across the Premier League, EFL Championship, EFL League 1 and EFL League 2 and this could increase to 164623 if matches were made more accessible (see appendix).

Target Consumers

Visually impaired football fans who:

already attend live matches and struggle to fully engage with the atmosphere because they cannot follow the live events of the game

would attend if the game were made more accessible

Key Partners

To achieve this, we will need to develop strong links with manufacturers, visually impaired charities, football stadiums, clubs, and fans.

Our most important partners will be the owners of the live video footage from football matches. We will begin by partnering with Sky, the largest football broadcaster in the UK. Working with Sky will give us access to video footage of EFL League One, EFL League Two, EFL Championship, the Premier League, and the EFL Trophy and EFL Cup in the future.

Advertising and Customer Engagement

We will use our stadium and club partners' media channels, including their websites and social media accounts to reach our customers. Partner charities will target their members with our services and endorse our products through online communities.

Competitive Edge

- The AI commentary will be generated in real-time, so fans can fully engage with the events of the game and feel a connection with the emotional atmosphere of the stadium.
- Unlike colour commentary, the AI commentary provided will follow the detailed events of the game without intermittent pauses and only relevant facts and tangents.
- TeamPlayer will use close co-creation with fans and the most modern machine learning technologies to train the AI commentator to focus on certain points of interest and to describe the events in a pleasant coherent flow.
- Simple radio connections experience a lag against the real-time action.
- Limited competitors are currently only offering tactile alternatives to audio description (Irish Times, 2022).
- Our focus differentiation strategy creates a unique product which specifically targets the niche visually impaired market (Porter, 1985).

Barriers to entry

TeamPlayer will have the first mover advantage and once strong connections are made with charities, stadiums, football clubs and football coverage providers, it will be hard for new entrants to overthrow these partnerships. However, once our technology is tried and tested, there are relatively low barriers to entry within other sports like rugby or basketball. We will protect our technology by patenting the AI commentary and the designs of our physical product and by investing in our HR department to ensure we are meeting the career goals of our employees. This will make it difficult for other companies to replicate our work and to engage our staff. Moreover, we will further invest in our client liaison and customer engagement teams to develop a product and service that best suits our stakeholder's needs. Finally, we will be conscientious in building relationships with other sports to facilitate our future expansion.

MARKET ANALYSIS

- There is an estimated 2.2 billion people suffering with some level of visual impairment worldwide(Demmin and Silverstein, 2020). In the UK there are over 2 million people living with sight loss and of these around 340,000 are registered as blind or partially sighted (Blindness and vision loss, 2022).
- Assistive Technologies for the visually impaired was valued at $799.21 Million in 2020 and is projected to reach $1,364.57 million by 2028, growing at a compound annual growth rate (CAGR) of 6.92% from 2021 to 2028 (Assistive Technologies For Visually Impaired Market Size And Forecast, 2022).
- Football is one of the most popular and heavily commercialised sports in the world. The matchday revenue for the 2021/2022 season for the Premier League is projected to be over £700 million.

Audio description in film and TV is becoming increasingly important and expected, with Apple TV+ and Disney+ launching fully integrated AD services in 2019 (Audio description (AD), 2022).

Audio description is being integrated into other live experiences and entertainment forms, including cinemas, museums, art galleries, escape rooms and theatres (Audio description (AD), 2022). However, AD in sport has been slow to develop.

Trends

The RNIB's project Soccer Sight began to train commentators in 2006 and worked with 17 English and Welsh football teams in the early 2000s (Soccer Sight Guide, 2022).

In the 2021 Australian Open, AI generated descriptive sounds made the game more accessible to the visually impaired (Fast Company, 2022).

During the Rio 2016 Olympic and Paralympic Games, NHK used automatically generated captions and audio description for over 2000 sporting contests (Kurihara et al., 2019).

MARKET ANALYSIS

Market Inhibitors

Many VIPs are afraid of attending live matches and feel unsafe amongst large crowds.

The over commercialisation of football, the closure of the Bury Football Club and the European Super League have all contributed to fans frustration towards the sport (Crouch, 2022).

The COVID-19 pandemic caused the total revenue of the Premier League to decrease by £648 million when fans were no longer allowed to attend matches (Deloitte Annual Review of Football Finances, 2021).

Audio and video coverage of EFL matches may cause the number of live fans to drop because they can watch matches live from home (EFL, 2021).

Visually impaired people (VIPs) are increasing due to a reduction in age-standardised prevalence of sight loss, population growth and the ageing population (Bourne et al., 2017). By 2050, the number of people with sight loss in the UK will to rise to 4 million (Key information and statistics on sight loss in the UK, 2022).

The development of AI and Machine Learning techniques have allowed image processing and image captioning to become ever more accurate and detailed (Mahalakshmi and Fatima, 2022).

Market Drivers

Market Sizing

Both of our top-down and bottom-up approaches to Market Sizing estimate a current market value of between £100,000 and £200,000. Therefore, if we were to capture the entirety of this market across the Premier League and EFL Leagues, our revenue from per match audio-description would fall within this range.

OPERATIONS

Our services rely on video footage provided by a third-party broadcaster. In our negotiations to gain access to the video footage, we will offer between 5%-33% (this being the absolute ceiling) of the gross profit from AD sales, which is worth between £3970.20 and £26,203.32 in Month 36.

Software Development and Maintenance

We will require two full-time programmers with skills in web development, AI, machine learning and programming for hardware. Their main roles will be to:
- Train the AI algorithms using existing football footage
- Design a programme to process raw video footage and transmit AD to the Box
- Develop our website to sell the Box and the AD
- Troubleshoot for technical problems
- Develop the software to control the Box

The yearly cost of these programmers is £90k.

Manufacturing

The individual components of the product will be produced and assembled in the UK using external 3D printing services. These include the PCB, charging cable, lanyard, case and packaging.
- The total start-up cost for production is £90.
- The total cost of producing and packaging each Box is £3.30.

Storage and Fufillment

TeamPlayer Boxes will be stored in bulk in a public warehouse. We will use the third-party logistics service provider fulfilment to deliver these, equal to £3 per item.

Overhead Costs

We will rent a small private office space. There will be start-up costs to provide every employee with a laptop, Microsoft licence and high-speed internet access. Additional cost will be incurred by renting space on Cloud Servers, setting up a firewall and antivirus software.

The total start-up cost for software requirements and laptops is £3600.

The yearly cost of our overheads is £137,268.

KEY OBJECTIVES

OBJECTIVE

To capture both target consumers for popular men's football league matches in England and Wales.

MISSION

To enable VIPs to access and follow the action of live football matches using audio description technology based on established AI tracking software.

KPI'S

We will use Key Performance Indicators to measure our success against this forecasting, including (Kaplan and Norton, 2005):

- **Return on capital employed (ROCE):** our business should see sustained profit over time.
- **Customer retention:** our model is reliant on customers continuing to use our human-centred audio description technology at each live football match they attend.
- **Product quality:** our product requires high speed processing and detailed, relevant AD.

FORECASTING SOURCES

Our demand and capability driven business forecasting has been developed from quantitative and qualitive sources:

- **'Have a go heroes':** we used pre-pandemic data to model the football fanbase. No trends have been directly extrapolated to model our business' growth.
- **'Management opinion':** we made reasonable evidence-driven assumptions, balanced with risk analysis and prediction for alternative outcomes (see Appendix).
- **'Consumer surveys':** interviews with visually impaired consumers have been at the centre of our product development and inspired the creation of this business.
- **'Delphi method':** our product development included discussion with industry experts and we will create a formal panel for these contacts (Twin, 2021).

STRATEGY

Our first three years focus on building our customer base within the Sky Partnership.
EFL Leagues 1 and 2 attract less public attention, so we will start with these to enable the safe iteration and development of our audio description according to customer feedback. The reputation of our company or Sky won't be damaged by any small technical faults.

①

In our second year, we will make our technology available for the higher profile EFL Championship and Premier League matches which will capture a bigger market. Our growing reputation will attract type 2 consumers.
In our third year, we will open coverage of the three most prestigious knockout competitions in -English football, drawing both type 1 and 2 consumers, because these football teams are already included in our coverage.

②

Our first three years would see us capture type 1 and 2 consumers in England and Wales and build our brand's reputation and confidence in our technology. Beyond Year 3, TeamPlayer have both short- and long-term plans to expand our market:

- TeamPlayer will expand to coverage of the Women's Super League and Women's Championship League in the UK.
- TeamPlayer will be available for international competitions including the UEFA European Football Championship and the FIFA World Cup.
- TeamPlayer coverage will be introduced on an international scale for football leagues, including UEFA and FIFA.
- TeamPlayer technology will be adapted for coverage of other pitch-based sports, including rugby and hockey.
- TeamPlayer technology will be developed to attract the sighted market, including through augmented reality statistics and video headset coverage for a live stadium audience.

③

STRATEGY

YEAR 1 TOTAL
£27,455.62
1380 AD SPM

1. Type 1 for EFL League 1 matches:
   - £18,460 MV
   - 897 AD SpM
2. Type 1 for EFL League 2 matches:
   - £8,995.04 MV
   - 483 AD SpM

1. T1 for Champions League matches:
   - £31,900.86 MV
   - 1587 AD SpM
2. T1 for Premier League matches:
   - £52,523.61 MV
   - 2613 AD SpM
3. T2 for EFL League 1 matches:
   - £50,107.29 MV
   - 2484 AD SpM
4. T2 for EFL League 2 matches:
   - £24,415.12 MV
   - 1242 AD SpM

YEAR 2 TOTAL
£186,402.50
9306 AD SPM

YEAR 3 TOTAL
£473,324.04
31,762 AD SPM

1. T2 for Champions League matches:
   - £86,588.04 MV
   - 4347 AD SpM
2. T2 for Premier League matches:
   - £142,564.07 MV
   - 7125 AD SpM
3. T1 & T2 for EFL League 1 matches:
   - £19,853.29 MV
   - 4198 AD SpM
4. T1 & T2 for EFL League 2 matches:
   - £11,618.37 MV
   - 1175 AD SpM
5. T1 & T2 for FA Cup:
   - £26,297.77 MV
   - 5612 AD SpM

Key
AD = Audio Description
MV = Market Value
SpM = Streams per Match
T1 = Type 1
T2 = Type 2

Exit Strategy

Our plan does not include projections after year 3 because these would depend on the strategy of international growth we would execute. However, in the last month of the football season in Year 3 we make £80k gross profit from AD rental sales alone. Projecting this figure as a baseline for monthly profits in Year 4 (on which other growth would build), we would have a balance of approximately £1 million by the end of year 4. This is a 400% increase on our initial investment of £200k.

Therefore, our management team does not envisage exiting after year 3 as the business is still at a point of growth. If an investor wishes to exit after year 3, our team will execute a management buyout of their share. This is only medium-risk and would ensure continuity of the business for the next years of trading. If after year 4, our management team wanted to exit, we would sell the business to a competitor.

FINANCIAL OVERVIEW

The main costs of the business are the cost of manufacturing and distributing the product and the cost of an in-house technology team.

The TeamPlayer Box is a one-time purchase set at a price point of £25, which has an 84% profit margin. However, our main profit is made through selling audio description for £2.50 per match.

Football runs over an 8-month season (August to March), which means there are four months a year when the business is incurring overhead costs but not making any profit.

The business will break even in Month 30 on £396 EBITDA, generated from audio description gross sales of £49,682 from 19,873 AD streams per month.
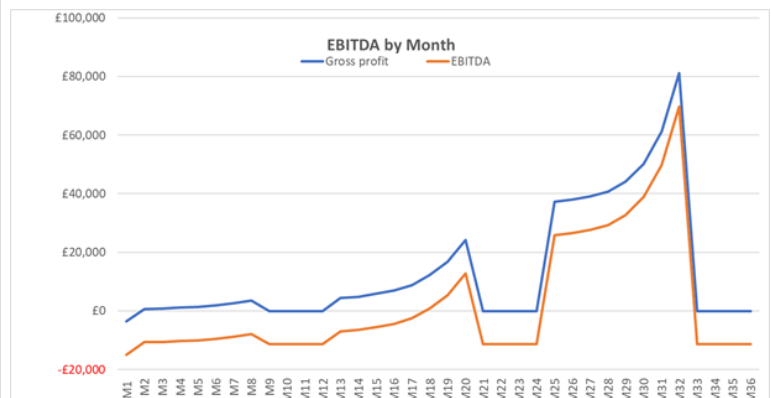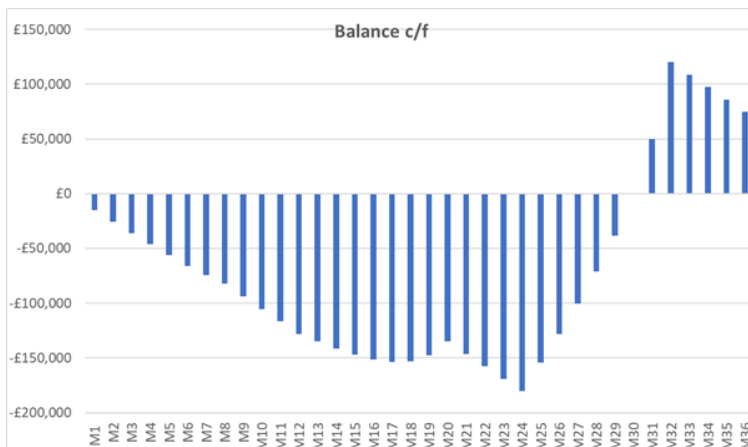
We have identified a minimum funding requirement of £200,000, primarily due to the expensive start-up costs and overheads. This would be met by the equity holders and grant funding, with an additional £50,000 being made available through a bank overdraft facility. This would not need to be drawn on in the base case set out in this business plan but would be necessary for the risk mitigation purposes we have outlined.

RISK ANALYSIS

SEVERITY X PROBABILITY = RATING

Timescale	Cause of risk - IF	Effect of risk - THEN	Severity	Probability	Rating
Long Term	If we cannot gather a support team who can fix the product if it malfunctions	Stadiums will lose confidence in our ability to run the business	5	0.8	4
Mid Term	Broadcast delay occurs during the match	We will need to introduce signal booster	5	0.8	4
Mid term	We cannot guarantee same number of product will be bought at each match	Stadiums will need a minimum assurance of products bought - company may have to incur losses	4	0.8	3.2
Long Term	If there is a surge in energy prices	Stadiums may not want to integrate our technology	4	0.7	2.8
Short Term	Stadiums may not want to integrate our technology	Our ethical standards would be called into question	4	0.7	2.8
Short term	The product can not be made in a sustainable way (either from cardboard, paper, etc without single use plastic)	Our company image will be damaged, and the costs would increase drastically.	4	0.7	2.8
Long Term	Our financial forecasts are mismanaged, leading them to be inaccurate	Will incur a substantial loss of money over a long period of time, as well as not surviving an audit	5	0.5	2.5

These table clippings represent the biggest risks to our venture. Our biggest two risks are both down to technical failures. If we cannot gather technicians to be on hand for technical support at matches, or there is a broadcast delay within the stadiums, this will pose a significant issue in terms of the stadiums/broadcasters' confidence in our venture.

Our risk management strategies involve lots of different consultants. While this may not be the most cost-effective strategy, it would ensure a higher quality solution. For example, if our brand is challenged by competitors, we would hire a high-level marketing consultant to market our image of integrating the visually impaired rather than segregating them.

FUNDING STRATEGY
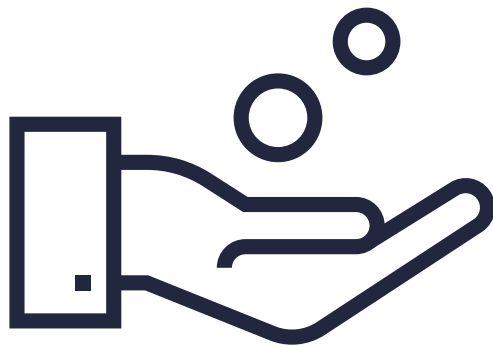
Given the social benefits of our enterprise, we can attract investment through grant funding. We have already established key partnerships with charities, who helped us secure interviews with VIPs. These include RNIB, Blind Veterans UK and 4sight Vision Support.
Direct financial support from these NGOs or fundraising projects advertised through them would enable us to raise both our business' capital and our profile.
Our business also fits many different profiles for grant funding and innovation competitions:

Entertainment and leisure: Funds like Places and Spaces are available for projects to develop the sports facilities in communities through accessibility (Sport England, 2022).

Mental health and wellbeing: NIHR create regular funding opportunities for projects, including through association with the AHSN Innovation Exchange (2022).

Collaborative research and development: our partnership with charities gives us the chance to apply for funds like the Innovate UK MyWorld project (2022).

Artificial Intelligence: Organisations like UKRI have extensive portfolios for supporting disruptive and commercialised AI projects with social benefits (El-Hanfy and Argudo, 2021).

Innovation: the SBRI offer funding opportunities for innovative technologies (GOV.UK, 2015).

Diversity, disability, and inclusion: trusts such as the Peter Harrison Foundation support projects which increase accessibility to sports (2022).

Finally, our group would consider angel investment opportunities, sharing up to a total of 20% equity of our business with any investors that came on board. Platforms such as AngelList create the opportunity for us to pitch our start-up to entrepreneurs with established portfolios in sports, leisure, technology, or disability services (2022).

MANAGEMENT TEAM

CEO/CMO: ROWAN JENKINS HAS CONTACTS WITHIN THE VISUALLY IMPAIRED COMMUNITY AND EXPERIENCE AS A PMO ANALYST AT SHELL ENERGY.

COO: EDEN SIMKINS IS JUNIOR INNOVATION MANAGER AT CREA INC DESIGN LTD AND IS INSPIRED BY PROJECTS WITH A SOCIAL FOCUS.

CFO: DAVID SIMKINS IS A MARKETING INTERN AT RICHARD IRWIN MUSIC, WITH EXPERIENCE IN ROYALTY AND INCOME MANAGEMENT.

CTO: MICHAL STOLARCZYK IS AN MSC COMPUTER SCIENTIST WITH A BACKGROUND IN MANAGING CORPORATE TECHNOLOGIES WITH ING BANK.

Our vision for our project's accessibility and social impact can be summarised in three key aims:

- Value over Profit: our project should be meaningful to the VI and to us.
- Empathy in Ethics: we should treat the subject with sensitivity, respect, and human focus.
- Open Working Environment: we will foster clarity, learning and creativity within our group.

Ideal Future Team

In addition to our current management team, we will need a committed, socially driven full-time employees. This would include several specialist technicians, a data analyst, and a client liaison officer and a HR officer. We will need an angel supplier, such as a stadium or a broadcaster (Sky) to host to our product.

SUPPORT NETWORK

Our network already includes visual impairment charities and medical research organisations, such as RNIB, Blind Veterans UK and 4sight Vision Support. We can reach a wide audience through these charities; there are 3000 UK volunteers and nearly 2 million members in RNIB alone (2022). Members of Blind Veterans have already assisted with our research and development, and they have expressed interest in following the progress of our project.

Our project has been professionally mentored by Jo Bangoura, Manager of Digital Transformation at the West of England AHSN. Jo has experience working with start-ups in the medical industry and we hope she will continue as an Operational Strategy Consultant for TeamPlayer.

Market Sizing

Top-Down

Contracted football broadcasters in the England are limited to Sky, BBC, BT Sports, Premier Sports, ITV, Prime Video, Quest and Free Sports (Sports broadcasting contracts in the United Kingdom - Wikipedia, 2022).

An initial partnership with Sky would allow us to provide audio description for 2036 games per season played by the 92 best performing football teams in the UK playing across Sky Bet League One, Sky Bet League Two, Sky Bet Championship and the Premier League. The projected tickets sold on a per match basis for these leagues during the 2021/2022 season is 31965740.

According to the RNIB, across England and Wales the percentage of visually impaired persons within the total population is 0.515%. Of these 41% reported that they had a lot of choice about how they spent their free time(2022). Therefore, currently 0.211% of live football attendees are visually impaired and account for 67448 tickets sold during a season.

The average cost of a single match audio pass for a game is £2.50 (Barrow Association Football Club - Subscribe, 2022), so the "on the day" audio description for the visually impaired EFL and Premier League football market is worth £168,619 per season (see appendix) across the four leagues.

Bottom-Up

Visual impairment accounts for 7% of disabilities in those between 18 and 65 (Family Resources Survey: financial year 2020 to 2021, 2022), the age range who account for 86% of the Premier League's fan base.

The Premier League published that during the 2019/2020 season 2% of tickets sold were disabled tickets. Extrapolation of this data across the 4 leagues and allocating 7% of disabled seats to the visually impaired we find a second estimation of the market value of "on the day" audio description to be £112,000 (see appendix).

Vision

Gen Z and Gen Alpha will increasingly demand an augmented and gamified live sporting experience (Mons, 2020). Since the 2010s, virtual reality and statistics technologies such as Track 160 tracking software and Video Assistant Referee, have since played a role in innovating football for club performance analysts and coaches (Bundesliga, 2019). However, these features remain merely observable for fans, not directly accessible and let alone customisable.

Visually impaired people struggle to follow live football matches because simple radio connections experience a lag against the real-time action and there is no other form of live commentary available for them to access. TeamPlayer marries the AI tracking software already available in most stadiums with audio description technology, to narrate live football games for VI football fans in a stadium. Customers buy the Box in advance and paid a small fee per match to connect to the stadium's circuit for the audio description. This enables to them to visualise the match and get closer to the action.

Costs

Start-up costs:
· £600 pp start up for laptop.
· £40 for 3D printing design

Overhead Costs:
1. Computers - each employee should have his own computer (£600 pp)
2. High-speed internet access- essential if we want to use cloud computing and be able to solve errors in real time (£30-40 p/m)
3. Cloud Computing - AWS or Azure servers to run our software on (£40-£60 p/m)
4. Data security - good firewall and antivirus (£1,500 - £15,000 p/y)
5. Microsoft licence - word, powerpoint, excel etc. Not essential for coding but I'm sure as a company we might need it (£9.40 pp/m)

TeamPlayer Box: Manufacturing Cost
Electronics Cost
PCB (Printed Circuit Board)
according to this calculator (PCB Cost Calculator | Online PCB Manufacturing Quote, 2022)
· the order of 100 units would cost $0.95 per unit
· the order of 200 units would cost $0.71 per unit
· the order of 1000 units would cost $0.42 per unit

Charging cable
$0.09 per unit (Alibaba.com. 2022)

Enclosure/case Cost
Notes: seems like the cheapest way to manufacture device enclosure here in UK is using 3D printing services or buying a 3D printer ourselves (depending how many units we want to produce ofc)
Design: $50-$100[ES1]
3D Printing
Cost of buying and operating 3D printer ourselves:
· Cost of buying the printer (one that is good for our purposes) - $2,500
· One that is good for our purposes could be $400.
· Active 3D printer costs $0.35 per hour ($0.15 filament consumption, $0.0158 electricity, $0.01 nozzle replacement, $0.17 amortization of the machine) -> operating machine 8hr/day on working days (252 days/year) would translate to $695 [2]
· We need 2hrs to print a simple box-liked enclosure and therefore it would cost $0.7 per unit (plus the cost of buying the printer in the first place ofc)
Cost of using 3D printing services:
Hard to say without a ready 3d model (the price depends on the model) but around $3 per unit.
Lanyard Cost: the cost per unit is £0.01[ES1]
Assembly Cost
when ordering more than 100 units: $0.07/$0.08 per unit

Retail Package Cost
Folding carton with a digital print (How Much Does Packaging Cost in 2021?, 2021):
the order of 100 units would cost $350-$400 total
the order of 500-1000 units would cost $2.3-$4.4 per unit + $250 tooling cost
Estimated total:
$(0.95+0.09+3+0.07) = $4.11 = £3.29

Assumptions

· Assume we capture the entire potential market of VIP fans of each league in a year.

· Instant sale payment terms

· £1000 is spent on website, advertising, marketing each month.

· Assumed there is a consistent number of matches per month

· We have a 6-person team for the course of the 3 years.

· Paying 2 develops £45kpa (£3750 p/m) = £7500

· Assumption that the attendance for the EFL Trophy can be modelled using the attendance to League 1 and League 2 clubs.

· Assumption that the attendance for the FA Cup can be modelled using the attendance EFL Cup.

· Capture of current market of VIP fans (2 s.f.) follows the following model of the growth multiplier $7^{\sqrt{13}}$ (7th root of 13) = 1.44 (2 d.p.).

1	2	3	4	5	6	7	8
1	1	2	3	4	6	9	13

EQUITY SHARE

■ Michał ■ David ■ Eden ■ Rowan
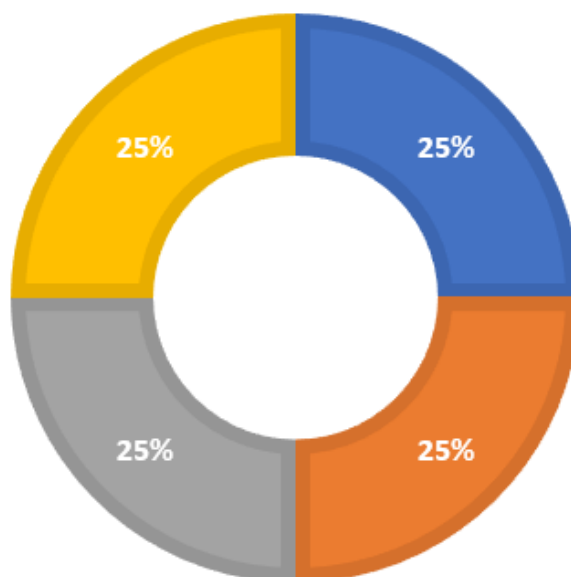
Equity Share is as follows:

David Simkins - 25%
Eden Simkins - 25%
Michał Stolarczyk - 25%
Rowan Jenkins - 25%

Signed & agreed by all.

25% 25% 25% 25%

2021. Deloitte Annual Review of Football Finances. [online] Deloitte. Available at: <https://www2.deloitte.com/content/dam/Deloitte/uk/Documents/sports-business-group/deloitte-uk-annual-review-of-football-finance-2021.pdf> [Accessed 3 May 2022].

Amazon.co.uk. 2022. [online] Available at: <https://www.amazon.co.uk/dp/0743260872?geniuslink=true> [Accessed 3 May 2022].

Barrowafc.com. 2022. Barrow Association Football Club - Subscribe. [online] Available at: <https://www.barrowafc.com/ifollow/subscribe/> [Accessed 3 May 2022].

Bourne RRA, Flaxman SR, Braithwaite T, Cicinelli MV, Das A, Jonas JB, Keeffe J, Kempen JH, Leasher J, Limburg H, Naidoo K, Pesudovs K, Resnikoff S, Silvester A, Stevens GA, Tahhan N, Wong TY, Taylor HR; Vision Loss Expert Group. Magnitude, temporal trends, and projections of the global prevalence of blindness and distance and near vision impairment: a systematic review and meta-analysis. Lancet Glob Health. 2017 Sep;5(9):e888-e897. doi: 10.1016/S2214-109X(17)30293-0. Epub 2017 Aug 2. PMID: 28779882.

Bundesliga (2019) The Future of Football - New Technology in the Bundesliga. Available at: https://www.youtube.com/watch?v=Qb4vNYO_PuA (Accessed 24/02/2022)

Crouch, T., 2022. Fan-Led Review of Football Governance: securing the game's future. [online]

GOV.UK. Available at: <https://www.gov.uk/government/publications/fan-led-review-of-football-governance-securing-the-games-future/fan-led-review-of-football-governance-securing-the-games-future#chap3> [Accessed 3 May 2022].

Demmin, D. and Silverstein, S., 2020. <p>Visual Impairment and Mental Health: Unmet Needs and Treatment Options</p>. Clinical Ophthalmology, Volume 14, pp.4229-4251.

EFL, 2021. EFL Supporters Survey 2019 Report. [online] EFL. Available at: <https://www.efl.com/contentassets/5fd7b93168134ee0b9da11fa8e30abd0/efl-supporters-survey-2019-report.pdf> [Accessed 3 May 2022].

En.wikipedia.org. 2022. Sports broadcasting contracts in the United Kingdom - Wikipedia. [online] Available at: <https://en.wikipedia.org/wiki/Sports_broadcasting_contracts_in_the_United_Kingdom> [Accessed 3 May 2022].

2Fast Company. 2022. Hear the new experience designed to bring people who are blind into the excitement of a tennis match. [online] Available at: <https://www.fastcompany.com/90605656/hear-the-new-experience-designed-to-bring-people-who-are-blind-into-the-excitement-of-a-tennis-match> [Accessed 3 May 2022].

GOV.UK. 2022. Family Resources Survey: financial year 2020 to 2021. [online] Available at: <https://www.gov.uk/government/statistics/family-resources-survey-financial-year-2020-to-2021/family-resources-survey-financial-year-2020-to-2021> [Accessed 3 May 2022].

Investopedia. 2022. What Is the Delphi Method?. [online] Available at: <https://www.investopedia.com/terms/d/delphi-method.asp> [Accessed 3 May 2022].

Kaplan, R. S. and Norton, D. P. (2005) "The Balanced Scorecard: Measures That Drive Performance," HARVARD BUSINESS REVIEW, 83(7), pp. 172–180.

Kurihara, K., Imai, A., Seiyama, N., Shimizu, T., Sato, S., Yamada, I., Kumano, T., Tako, R., Miyazaki, T., Ichiki, M., Takagi, T. and Sumiyoshi, H., 2019. Automatic Generation of Audio Descriptions for Sports Programs. SMPTE Motion Imaging Journal, 128(1), pp.41-47.

Mahalakshmi, P. and Fatima, N., 2022. Summarization of Text and Image Captioning in Information Retrieval Using Deep Learning Techniques. IEEE Access, 10, pp.18289-18297.

Mons, J. K. (2020) The future of soccer: 12 intriguing predictions. Available at: https://sporttomorrow.com/the-future-of-soccer-12-intriguingpredictions/?fbclid=IwAR3_xe0ba3RC4CrzDR5uQpK-5QBgDPpamYUIWudGUg7r39o7boeYoBxCJc (Accessed 20/02/2022)

nhs.uk. 2022. Blindness and vision loss. [online] Available at: <https://www.nhs.uk/conditions/vision-loss/#:~:text=In%20the%20UK%2C%20more%20than,to%20come%20to%20terms%20with.> [Accessed 3 May 2022].

RNIB - See differently. 2022. Audio description (AD). [online] Available at: <https://www.rnib.org.uk/information-everyday-living-home-and-leisure-television-radio-and-film/audio-description> [Accessed 3 May 2022].

2RNIB - See differently. 2022. Key information and statistics on sight loss in the UK. [online] Available at: <https://www.rnib.org.uk/professionals/knowledge-and-research-hub/key-information-and-statistics#:~:text=This%20means%20that%2C%20without%20action,double%20to%20over%20four%20million> [Accessed 3 May 2022].

Rnib.org.uk. 2022. Soccer Sight Guide. [online] Available at: <https://www.rnib.org.uk/sites/default/files/soccer_sight_guide.doc> [Accessed 3 May 2022].

Rnib.org.uk. 2022. [online] Available at: <https://www.rnib.org.uk/sites/default/files/My%20Voice%202015%20-%20Full%20report%20-%20Accessible%20PDF_0.pdf> [Accessed 3 May 2022].

The Irish Times. 2022. Field of Vision aims to bring football to life for the visually impaired fans. [online] Available at: <https://www.irishtimes.com/business/innovation/field-of-vision-aims-to-bring-football-to-life-for-the-visually-impaired-fans-1.4826370> [Accessed 3 May 2022].

Verified Market Research. 2022. Assistive Technologies For Visually Impaired Market Size And Forecast. [online] Available at: <https://www.verifiedmarketresearch.com/product/assistive-technologies-for-visually-impaired-market/> [Accessed 3 May 2022].

BIBLIOGRAPHY

RISK ANALYSIS SPREADSHEET

Bark.com. 2022. How Much Does A Business Consultant Cost 2021 - Bark. [online] Available at: <https://www.bark.com/en/gb/business-consulting/business-consultant-cost> [Accessed 3 May 2022].

GOV.UK. 2022. Patenting your invention. [online] Available at: <https://www.gov.uk/patent-your-invention/decide-to-apply> [Accessed 3 May 2022].

Health and Safety Consultancy Services from Veritas Consulting. 2022. Guidance on our Costs. [online] Available at: <http://www.optimumsafetyconsultants.co.uk/health-and-safety-consultants-fees/> [Accessed 3 May 2022].

Herndon, M., 2022. How much to pay a marketing consultant. [online] Miles Herndon. Available at: <https://milesherndon.com/blog/how-much-should-i-pay-a-marketing-consultant> [Accessed 3 May 2022].

Loten, A., 2022. Audits Add Shine to Firms. [online] Available at: <https://www.wsj.com/articles/SB10001424052748703791904576076474014311438> [Accessed 3 May 2022].

Mobile Signal Booster for United Kingdom. 2022. Mobile Signal Repeater for 1800 MHz Nikrans LCD-150D in UK. [online] Available at: <https://www.mobile-signal-boosters.shop/repeater-65/?> [Accessed 3 May 2022].

Netitude.co.uk. 2022. How much should IT support cost?. [online] Available at: <https://www.netitude.co.uk/blog/it-support-costs> [Accessed 3 May 2022].

unbiased.co.uk. 2022. How much does a solicitor cost?. [online] Available at: <https://www.unbiased.co.uk/life/get-smart/how-much-does-a-solicitor-cost> [Accessed 3 May 2022].

BIBLIOGRAPHY

MARKET ANALYSIS SPREADSHEET

Birminghamworld.uk. 2022. Premier League table based on 21/22 attendances: Aston Villa sit above league average. [online] Available at: <https://www.birminghamworld.uk/sport/football/aston-villa/premier-league-table-based-on-2122-attendances-where-aston-villa-liverpool-manchester-united-all-rank-3622864> [Accessed 3 May 2022].

FAN banter. 2022. Average attendance of every Championship club for the 2021/22 season so far. [online] Available at: <https://fanbanter.co.uk/average-attendance-of-every-championship-club-for-the-2021-22-season-so-far/> [Accessed 3 May 2022].

FAN banter. 2022. Average attendance of every League One club for the 2021/22 season so far. [online] Available at: <https://fanbanter.co.uk/average-attendance-of-every-league-one-club-for-the-2021-22-season-so-far/> [Accessed 3 May 2022].

FAN banter. 2022. Average attendance of every League Two club for the 2021/22 season so far. [online] Available at: <https://fanbanter.co.uk/average-attendance-of-every-league-two-club-for-the-2021-22-season-so-far/> [Accessed 3 May 2022].

Football Stadiums. 2022. Championship. [online] Available at: <https://www.football-stadiums.co.uk/leagues/championship/> [Accessed 3 May 2022].

Football Stadiums. 2022. League One. [online] Available at: <https://www.football-stadiums.co.uk/leagues/league-one/> [Accessed 3 May 2022].

Football Stadiums. 2022. League Two. [online] Available at: <https://www.football-stadiums.co.uk/leagues/league-two/> [Accessed 3 May 2022].

Football Stadiums. 2022. Premier League. [online] Available at: <https://www.football-stadiums.co.uk/leagues/premier-league/> [Accessed 3 May 2022].

BIBLIOGRAPHY

MARKET ANALYSIS SPREADSHEET

GOV.UK. 2022. Family Resources Survey: financial year 2020 to 2021. [online] Available at: <https://www.gov.uk/government/statistics/family-resources-survey-financial-year-2020-to-2021/family-resources-survey-financial-year-2020-to-2021> [Accessed 3 May 2022].

Premierleague.com. 2022. Premier League 2019/20 ticket price research details. [online] Available at: <https://www.premierleague.com/news/1536734> [Accessed 3 May 2022].

worldfootball.net. 2022. Championship 2021/2022 - Attendance. [online] Available at: <https://www.worldfootball.net/attendance/eng-championship-2021-2022/1/> [Accessed 3 May 2022].

worldfootball.net. 2022. League One 2021/2022 - Attendance. [online] Available at: <https://www.worldfootball.net/attendance/eng-league-one-2021-2022/1/> [Accessed 3 May 2022].

worldfootball.net. 2022. League Two 2021/2022 - Attendance. [online] Available at: <https://www.worldfootball.net/attendance/eng-league-two-2021-2022/1/> [Accessed 3 May 2022].

worldfootball.net. 2022. Premier League 2021/2022 - Attendance. [online] Available at: <https://www.worldfootball.net/attendance/eng-premier-league-2021-2022/1/> [Accessed 3 May 2022].

BIBLIOGRAPHY

MANUFACTURING AND OPERATIONS

3dsolved.com. 2022. Complete 3D Printing Costs Breakdown; Updated 2022! – 3D Solved. [online] Available at: <https://3dsolved.com/3d-printing-costs/> [Accessed 3 May 2022].

Alibaba.com. 2022. Standard pure copper charge only micro usb charging cable compatible for all micro usb devices. [online] Available at: <https://www.alibaba.com/pla/Standard-pure-copper-charge-only-micro_1600054731944.html?mark=google_shopping&biz=pla&searchText=Micro+Usb+Cable&product_id=1600054731944&src=sem_ggl&from=sem_ggl&cmpgn=16509557688&adgrp=139882388808&fditm=&tgt=pla-1167377917675&locintrst=&locphyscl=1006567&mtchtyp=&ntwrk=u&device=c&dvcmdl=&creative=586657547233&plcmnt=&plcmntcat=&p1=&p2=&aceid=&position=&localKeyword=&pla_prdid=1600054731944_testTitleSFC&pla_country=GB&pla_lang=en&gclid=Cj0KCQjw06OTBhC_ARIsAAU1yOXf-XgvVRIjyhvNigZ1wU-S46p6d_KCbfREnKSOwHVLpP2QUrOl1GgaAqVLEALw_wcB> [Accessed 3 May 2022].

Apriori. 2022. Manufacturing Cost Estimation. [online] Available at: <https://www.apriori.com/manufacturing-cost-estimation/> [Accessed 3 May 2022].

BPC Electronics LTD. 2022. PCB Design - BPC Electronics LTD. [online] Available at: <https://www.bpcelectronics.com/about-us/pcb-design/> [Accessed 3 May 2022].

Candor Industries. 2022. How Much Does PCB Assembly Cost? - Candor Industries. [online] Available at: <https://www.candorind.com/how-much-does-pcb-assembly-cost/> [Accessed 3 May 2022].

Cost, E., Deml, R. and McMahon, R., 2022. Estimating Assembly Cost. [online] Electrical Engineering Stack Exchange. Available at: <https://electronics.stackexchange.com/questions/30671/estimating-assembly-cost> [Accessed 3 May 2022].

How to Buy Packaging. 2022. How Much Does Packaging Cost in 2021?. [online] Available at: <https://www.howtobuypackaging.com/how-much-does-packaging-cost/> [Accessed 3 May 2022].

Hubs.com. 2022. FDM 3D Printing Service | Instant Quotes, Online Ordering | Hubs. [online] Available at: <https://www.hubs.com/3d-printing/fdm/> [Accessed 3 May 2022].

Indeed Career Guide. 2022. How To Calculate Manufacturing Cost. [online] Available at: <https://www.indeed.com/career-advice/career-development/manufacturing-cost> [Accessed 3 May 2022].

BIBLIOGRAPHY

MANUFACTURING AND OPERATIONS

PREDICTABLE DESIGNS. 2022. How to Estimate the Manufacturing Cost for a New Electronic Product [Case Study: Bluetooth Device]. [online] Available at: <https://predictabledesigns.com/manufacturing-cost-case-study-ble-gps-tracking-device/> [Accessed 3 May 2022].

PREDICTABLE DESIGNS. 2022. Ultimate Guide: How to Develop a New Electronic Hardware Product (Updated 2021). [online] Available at: <https://predictabledesigns.com/how-to-develop-and-prototype-a-new-product> [Accessed 3 May 2022].

Prtwd.com. 2022. [online] Available at: <https://prtwd.com/guides/how-much-does-3d-printing-cost/> [Accessed 3 May 2022].

OSI Electronics UK | End-to-end customisable electronic design and manufacturing services include full PCB assembly and volume box build – from prototypes to fully finished products delivered anywhere in the world, backed by the global resources of a multi-billion dollar organisation. 2022. Box build of electronic products | OSI Electronics UK. [online] Available at: <https://www.osi-electronics.uk/services/electronics-box-build/> [Accessed 3 May 2022].

Technology Outlet. 2022. Best Budget 3D Printers (Under £400). [online] Available at: <https://technologyoutlet.co.uk/blogs/news/best-budget-3d-printers-under-400> [Accessed 3 May 2022].

Technology Outlet. 2022. How Much Does 3D Printing Cost?. [online] Available at: <https://technologyoutlet.co.uk/blogs/news/how-much-does-3d-printing-cost> [Accessed 3 May 2022].