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Introduction

To define the difference with lowercase 'd' and uppercase 'D' when talking about the D/deaf community. The terminology of the word Deaf indicates people who ultimately use sign language and are more immersed into Deaf culture and the community. However, the word deaf is predominantly used by people who use spoken language such as English, or cochlear implant users and socialise with the hearing community (BMJ, 2021).

The term 'deaf' will be referred to those with different levels of hearing loss, including those who do not sign or use full BSL throughout this report.

In this report, it will be discussed; what is the history of revolution of technology in Football and whether it has improved football society over the years. In addition, it will discuss the difference between Equity vs Equality and why that is important in football for Deaf players. Furthermore, it will look at the different barriers that still exist for Deaf people and how the proposal of the long-term project will overcome the barriers and help increase inclusivity for Deaf people in the future to participate in sport. Lastly, it will include a future plan that will cover the next few years over a business proposal while the product is developed with the connection of a big organisation.

Chapter 1

History of technology in Football

Football is played worldwide in contemporary society, there are tournaments each year to celebrate this sport, such as, the Premier League (PremierLeague, 2024). Football was first established by China in 250BC (Shaheen. A, 2023), where the individuals used a Hogs bladder, which consisted of a leather material to seal the bladder to form a ball figure (Shaheen. A, 2023).

The historical creation of the 'football' used in the sport was further improved by the company 'Goodyear' in 1855 (Shaheen. A, 2023). Goodyear designed the football in America using a rubber bladder, this material and design of the football constructed by Goodyear had the objective to create greater accuracy in the sport (Shaheen. A, 2023). The first design of the football created by China in 250BC has many design problems, which can cause significant issues for individuals when playing the sport, such issues include the hog's bladder being level to bursting all the time and some bladder isn't as accurate round base football compared to others. (McGowen. L, 2010). The modification of this design produced by Goodyear, is still frequently used in the sport today (Migual. L, 2022).



(McGowen. L, 2010)

Technology is used in football consistently in present society, for both players and the audience. The use of mobile, television and other technology devices. Such advances allow the audience to view the games, and enable the football teams to observe the games to enhance the players future competitive performance (Roberston 2020, p.2118).

These technological advances have positively contributed to the nature of the sport, however technological advances inhabited throughout the history of football have had an adverse impact on the sport.

The football whistle



(Reynoldsi, 2008)

Joseph Hudson invented the first use of a pea-whistle in 1884 known as “ Acme Thunderer ” which was first introduced in a football match for Notting Forest vs Sheffield Norfolk. But the original idea of a whistle came in the 1870s when it was first introduced for police officers to use (Zambonini, 2009).



(ACME, 2024)

1990's

Although technology is currently a core component in this sport, the first technological advances were not introduced until late 1980's (Buchan. S, 2018). This piece of technology was called 'cutting edge', which was designed to enable the use of analysis of videos. This tool allowed coaches, managers and players to watch the replay from their match, whilst also cropping and capturing certain parts of the video. This technological progression in the sports world allowed players to enhance their performance, as players and team members were able to watch the games continuously, identifying areas of strengths and weaknesses. (Buchan. S, 2018)

Furthermore, in the early 1990's technology continued to improve with the heart rate monitor equipment being introduced. The heart rate monitor is a tool that keeps track of the players performance and intensity, and can be used during both training and matches. This piece of equipment is still used within football today, and has been advanced to identify injuries (Deamer. L, 2018).

2000-2014

Throughout the years in 2000s-2010s, the science behind sports was recognised as an important factor in sport performance and physical/mental health and was greatly commercialised. Sports science combined the involvement between technology, physiology, biology and nutrition, and created supplements to increase overall athletic ability, whilst also decreasing recovery time. These supplements consisted of protein bars, protein shakes, tablets, and sporting drinks. There are multiple sport science chains commercialised in modern society and are used by professional footballers, such as 'WOW Hydrate' which has published a global partnership with the football team 'Manchester United' (Manchester United, 2023), and is promoted by other football players from a variety of teams.

Although sport science was distinguished as a core factor in sports in the years 2000-2010, technology such as the GPS tracking system was also introduced in 2008. The GPS tracker enabled the football clubs to capture information on the players performance such as "distance covered, quantity of accelerations and decelerations and volume of high-speed running they complete". In addition, this helped coaches understand the players injured if it occurred, but also encouraged the players to reach their maximum potential capability. The GPS tracker does this by providing the players statistical measurements of factors such as the players health and performance, creating a more competitive game, and a successful product in the market industry (Deamer. L, 2018).

During the same period of the technological development of the GPS tracker, compression clothing was also established. Compression clothing is designed to reduce detrimental effects of muscle fatigue such as muscle stiffness, as compression clothes increase the blood circulation flowing around the body and temperature due to the tightness around the body. This enhances players overall performance ability, as the compression clothing compresses the body, supporting muscles and stability (Deamer. L, 2018).

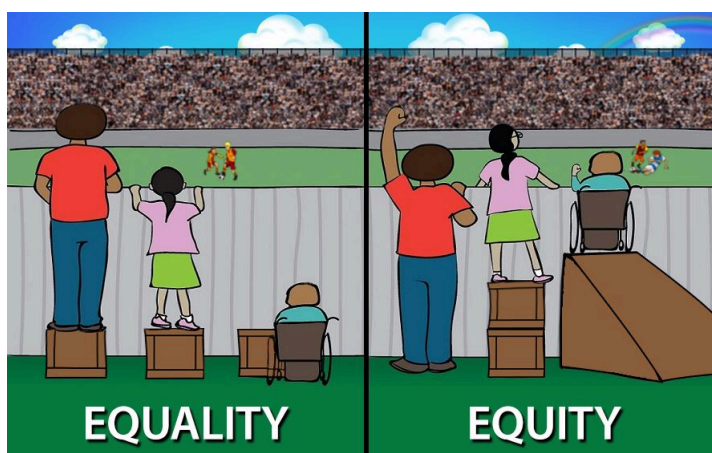
Research highlights that advances to football were also made during 2012, with football clubs utilising saliva samples to analyse the players health. This was undertaken on a weekly basis to identify factors such as sickness, recovery, and lifestyle health. Whilst using this technique to keep a formal track on players, football clubs also used the 'cryotherapy chambers' to remove waste products from the players body to enhance the maximum performance for the matches (Buchan. S, 2018)

In the same year, a new piece of technology was developed in football called "The goal detection system" . This technological development focused on the frequency of the wave, which was stated as a 'radio-based system' (Goal Ref Systems, 2024). This system detects whether or not the ball has gone over the goal line fully. This product sends a message to the referees watch, which classifies whether a goal has been scored. This product was further developed into a technology called Goal-Line Technology. This piece of technology was employed in the 2014 World Cup to determine the outcomes of the goals attempted. The GLT contains 14 cameras, producing photos up to 500 frames per second. This piece of technology succours the game accuracy, as the football is perpetually monitored throughout the game, capturing what the referee may not witness, therefore this product merges both an increased accuracy game, and a convenient tool for both the football teams and referee (Webb. T, 2022).

The most recent evolution of football technology is called VAR (Video assistant referee). The VAR system has three referees sitting in the back of a stadium constantly watching the video replays and analysing each situation in the game. It mainly supports major situations such as heavy fouls, offside, referees card decision, and penalties. While the game is playing, the VAR's referee can support the referee on the pitch by showing the video replay over and over until he is happy. From this, a decision may be overturned or advising the referee on the decision over the incident that had happened. This new piece of technology, although it is a very good technology to be added in football sport history, has a lot of problems such as far too many mistakes in the referee officiating during the matches causing the anger from the fans and players alike. Some fans said it destroys the "game we love" and loses the passion of football. It is still early stages and the VAR expected the backlash from the media, once it had developed even more and become 100% accurate in the decision making. As you can see, the technology has been advancing rapidly and there have been many concepts and ideas that want to be introduced in football such as holograms, or 3D video being played. "Nine times out of ten, technology has proven to be extremely helpful and has assisted match officials in making the right calls". This is why a big part of me has thought with such an advantage technology has been going, why not get a technology that will blend Deaf and hearing people into professional football and be part of the history of the growing use of technology that will break down the communication barriers in sport and get everyone involved (Webb. T, 2022).

'Equality' vs 'Equity'

The term 'equality' is defined by Holley (2022, p.964) as the 'state of being equal'. The United Kingdom (UK) Government introduced a law in 2010 to enforce equal rights, this law is recognised as 'the Equality Act 2010' (UK Government, 2010). This Act protects numerous characteristics, which are stated under section 4 of the Equality Act 2010 as 'age, gender, disability, sex, sexual orientation, marital status, race, religion or belief, marital status or civil partnership, gender reassignment, and pregnancy or maternity' (Government legalisation, 2010). These protected characteristics set out by the UK Government creates it unlawful to discriminate those under these protected characteristics. Focusing on disability, under section 6 of the Equality Act 2010, disability is defined as a long-term impairment that has a fundamental effect on an individual's ability to undertake daily activities (Legalisation Government, 2010). Linking this definition to deafness, deaf individuals experience considerable communication difficulties within the hearing community (Marceca, Sabato, and Sandroni, 2023; Luft, 2000, p.51). These communication barriers are consistent throughout a deaf person's lifetime, and are present in education (Berry, 2017, p.p 129-139), employment (reference), and healthcare (reference). Research shows that deaf individuals pretend to understand what has been discussed when conversing with hearing people, even if they did



not hear (Van Gent et al., 2011).

This evidence highlights that a number of deaf individuals face struggle when undergoing daily activities, suggesting that 'deafness' meets the criteria established under the protected characteristic 'disability'.

In contrast to this, the term 'equity' is referred to an approach that is taken to ensure that everyone has access to the same opportunities, whilst also adjusting to individuals personal needs (Tan, 2019 p.32;MacNeily 202). An example to identify the diverse meanings between equity and equality asserted by Dasani (2019) is 'equality is giving everyone a shoe, equity is giving everyone a shoe that fits'. Referring to the image above (ISSC, 2013), the left side shows each individual receiving equal apparatus for viewing, however on the right side of the image, the apparatus is modified to what the individuals require. This significantly demonstrates the dissimilarities between the two terms.

Although the terms 'equality' and 'equity' educate and encourage equal rights and accessibility, research presents multiple barriers that deaf individuals experience as a result of the loss of hearing. Deaf artists such as Jonny Costen present the exclusion faced by deaf individuals in the short film 'Silence is not always clearer'. Marega Palser and Gareth Clark, also known as 'Mr and Mrs Clarke' created the dialogue for this short film, describing it as "A journey of a Deaf person trapped in a hearing world" (MRS and MR Clarks, 2021). This short film reflects the actor Jonny Cotsen's personal life of how being deaf has impacted social inclusion. The aim of this short film was to make hearing viewers to become "Disconnected and lost" whilst watching, to raise awareness on how deaf individuals feel in social environments, and to educate the hearing world with a more clear understanding on of the communication barriers deaf individuals experience within the community (Asmaa Jama, 2019). Referring back to the terms 'equality' and 'equity', this short film highlights that those who are deaf face numerous barriers caused by the lack of deaf awareness, suggesting that these terms are not being achieved for those within deaf society.



(BBC, 2021)

As you can see, there are still many and many barriers that Deaf people are currently still facing in modern society. According to the NDCS (National Deaf Children Society), Communities are key for Deaf people to become active members and be involved in all sorts of activities such as shopping, sport, church, and market to name a few. Deaf people will feel included and feel as important as hearing people in their society. (NDCS, 2021)

The society of barriers that Deaf people still face are “**Lack of Awareness**”. These could be just purely based on lack of knowledge on how to interact with deaf people, or how to find sign language support online or in person. Without having a basic awareness over how to interact with a Deaf person can be seriously dangerous, or embarrassing in today's society especially with the rise of technology progressing rapidly and school education. (NDCS, 2021)

Another main barrier issue is “**Social attitudes**” towards the Deaf people. Some people, when they communicate with a Deaf person, often show their lack of awareness by doing

things such as exaggerated mouth movement, or shouting when there is no need. Some give off a negative attitude such as huffing and puffing, or saying the words “Don’t worry, I’ll tell you later” when Deaf people ask questions. Some people patronise Deaf people, for example, feeling sorry and try to help too much when Deaf people didn’t ask for any and always view Deaf as vulnerable when there is no need either. (NDCS, 2021)

Lastly, the common barriers for Deaf people are “**Lack of access to language and/or assistive devices**”. The majority of Deaf children will most likely be with the hearing families and it may be a difficult situation for the parent and sibling to change their attitude. The supporting style for the Deaf child may not be as good either, or even experience before which will most likely be due to low knowledge over what support is suitable for the Deaf child. Deaf children also usually developed and learned language later on in their life due to the lack of support provided for the Deaf child. (NDCS, 2021)

My whole project will focus into the categories of “**Lack of access to language and/or assistive devices**” (NDCS, 2021), due to the growing advance of technologies in which some cases have been a massive help and increase of inclusivity for Deaf people, but in other areas it has fallen behind or stayed the same. An example of this would be during the Covid-19 pandemic, face-masks were reinforced and every user had to have a mask on to stop the spread of Covid which did help a lot with the spread of disease. (JAMA, 2020). But on the other hand, it had been worse for the Deaf people because they couldn’t rely on lip-reading anymore. This was until society realised they needed to change the masks design so it is more accessible for everyone. According to the Royal College of Physicians (RCOF) Clinical Medicine, they state that “Without sound, only 30% of English is readable on the lips” (RCOF, 2021). This implied that for the rest of the language, Deaf people would have had to guess or indicate and follow the flow for the rest of the sentence that had been said which can cause embarrassment and feel excluded from the community.

Chapter 2

Primary research

While I was doing the long-term project I created a Survey to give out for the WDFA (Wales Deaf Football Association). The purpose of this study was to give me solid feedback on whether players struggle in football matches for Deaf teams or hearing as well.

The aim of this study was to find out if they have struggled in football training as well as with hearing football clubs training and matches. In order to complete this aim, primary research was completed (as shown in Appendix 1). Six questions were created to obtain rich, reliable, and robust data, whilst also gathering key information about the barriers experienced by professional Deaf athletes.

Coding is a technique used by researchers to simplify results into paraphrases or words (Mai S. Linneberg, Steffen Korsgaard, 2019). An example of how a researcher utilised coding in their survey answers is “It would be a **struggle** for me as I don’t know how to sign as much as everyone else can” (Appendix 1, 2023). The terminology keyword coding in that would be struggle.

For the 1st question, I just wanted to see Deaf athletes who are currently playing for football clubs, and so far only one player is still looking for a club. But the rest are currently playing for either Deaf, or hearing football clubs.

On Appendix 1 - Survey Coding question 2 and 3 which was anyone who struggled in a hearing football team in a match and training. More Deaf players struggled to communicate during the game and training due to numerous reasons. As an example, the weather can be a factor for the players as yes Deaf players can wear hearing aids, but the wind prevents this from working effectively. So the Deaf players can’t hear their coaches or referees when

communicating, or whistle. The thematic analysis of this whole survey was to identify and pick up the Deaf players' problems in football. The answers for this was mainly that a lot of Deaf players struggled to be involved in the hearing team due to communication barriers with the coaches and in the matches. This proves the reason why my product needs to be taken forward and solve this problem and come up with a product to prevent this from happening and improve inclusivity.

According to Appendix 1 - Survey Coding question 4, the most common keywords from this is 'struggled'. Some Deaf athletes state that they have no issues at all for the Deaf football teams while playing in a football match due to long term experience in Deaf community and understanding visual and body language. However, the majority of the Deaf athletes still struggle to play in a football match due to understanding the tactics by the managers and referees when their hearing aids are out, law in Deaf football matches means you have to take the hearing aids out (EDSO, 2018). In addition, some Deaf athletes still struggle to verbally communicate and have any awareness of what is going on in football matches.

As mentioned by the Appendix 1 - Survey Coding question 5, which has struggled for Deaf football training. Approximately, 40% of the people responded "No" for this question but roughly 60% responded as "Yes" to having a problem in training. For example, communication and awareness, visual issues, training methods to name a few.

The thematic analysis conclusion answers shows that there is a big gap between hearing football and Deaf football for Deaf athletes and the communication in both community sports for Deaf athletes is a huge factor. This survey shows and reinforces the reason why I am designing this product to help and increase inclusivity for Deaf people to feel just as important in the community linking to the topic of **"Lack of access to language and/or assistive devices"** (NDCS, 2021).

Product rationale

Based on the analysis of the weaknesses in the technological evolution within football, and the primary research of the barriers based in sports for deaf people, a product has been developed to promote inclusivity in sports. Comparing the whistle created by Joseph Hudson's to the survey completed by deaf football players in the Wales Deaf Football association (Appendix one), the overall outcome of the results showed that the footballs faced difficulties hearing the whistle. The original concept of the product involved electronics embedded within the interior of the whistle, which would send a signal to the receiver, which would have a built-in-vibration motor inside of the glove. However, after multiple meetings with electronic engineers, it was proposed that the design of the whistle would be too expensive to build, this resulted in a remodel of the original design of the whistle. A handheld button device was then produced, this alternative of the original whistle was agreed with the electronic engineers, as the handheld button device increases the speed of the signals sent to the receiver, and it is a more cost-effective product compared to the whistle. The initial design of the glove faced durability difficulties due to continuous weakening of the stitches, this meant a new design was required which led to the wristband concept as it was a cheaper option and more durable as it has a silicone material which protects against all weather conditions.

Chapter 3

Meeting take place for the project

Overall, I had all the guidance and advice throughout my project. It has been quite up and down with some of the guidance, especially the electronic/programming engineer that can design and support me with the circuit board. This is because some of the support staff live too far away so contact was difficult. Also, others were too busy due to some of the demands they got in their working life. But overall the experience of having the support from the UWTSD (University of Wales Trinity Saint David) team, especially Katheryn Penula who is in charge of the Intellectual Property guidant and controlled the funding side of it from the University.

My first meeting with Katheryn Penaula (Appendix 2) - state that the meeting took place back in June 15th and that was suggesting whether I should take advice from the UWTSD with their full support if they wanted to invest in my project, or still have guided support from the UWTSD board group. It had slightly less support as the previous one offered support for the Patent and data protection for the product, or specific members of a group that is relevant. In the end I have taken the help and full support from the UWTSD and since then I have been working closely with the members of the board with their advice and suggestions on what I should do while I have undertaken the project myself mostly. I wokred with Dylan Williams Jones who was assisting me with the business side of the project such as the commercial profits and product ideas who to sell the product to. I have joined an online 5 session business course showing how to be a business / freelancer ranging from who is your target audience, to data protection, to staff, to lastly cash flow to name a few. I had support from Li Ling Tang and Tom Baker who is a director who worked for a company called

Murgitroyd. Their role was in charge of advice over whether to get my product protected through Design right, or best with a patent but it costs more money. I then had a third-party group called James Crellins to start off with the 1st prototype I have created for my project to see whether it would work, or not. But further down the line UWTSD wanted my product to be even more protected because they can see the big potential and wanted to avoid the risk of the ideas being stolen by a third party outside of UWTSD. They gave me the details of Mahesh Kanneth who is a doctor student in electronics who was a brilliant person who knows the information needed, but the issue was that Mahesh had to move back to another country with his family so it was very difficult to keep in touch and progress with my work. I now have ended up with Gary Jones, who was a lecturer in UWTSD Swansea.

Chapter 4

Conclusion

To sum up this report, there clearly has been an increase of technology and science in football across decades. However, there is present barriers and complications with equality and equity implemented in football, such as still using a whistle in football games although deaf athletes are unable to hear this device. The law from European Deaf Sport Organisation states that the use of hearing aids/ cochlear are not permitted to be worn during the football matches (EDSO, 2018), this causes deaf players to face significant communication barriers, which has been evaluated within the primary research of this report.

Overall conclusion of the product and future development

In conclusion, technology has been developing at a rapid pace, causing football to evolve into a futuristic sport in contemporary society. I strongly believe that it is important to not isolate disabled people when developing such technology. There is significant potential with this product in the future, for example this product can result in merging the Paralympics, Deaflympics, and Olympics all into one big organisation, being renamed “Inclusivity Olympics”.

Referring back to the quote of a deaf individual “I don’t see myself as disabled but as part of a linguistic minority, I can drive, read a book, play sports, cook and sing. My only struggle is communicating with hearing people. Who has the disability? Me or them?”. It highlights that the communication barrier is a big concern for Deaf people as in some areas technology as although there are some areas of technology that promotes inclusivity, there are other areas where barriers have worsened.

For my future plan, I will be carrying out a collaboration with the WDFA (Wales Deaf Football Association) to improve and develop my product to help increase inclusivity for Deaf athletes to participate within football. While I will be collaborating with the WDFA, I will also be working with the chairman of WDFA to participate in their meeting with the DSW (Disability Sport Wales) to do a presentation and deliver my concept not just for football, but for all sports in Wales and the UK.

I have set up a GoFundMe Page that will be helping me set up my business as a freelancer and develop and produce a prototype that will be available for WDFA to use in both trial training and friendly matches. If it is successful, I will then introduce the product globally with

the EDSO (European Deaf Sport Organisation) and ICSD (International Committee of Sport for the Deaf) to help further increase inclusivity for all Deaf athletes and people.

For the commercial side of the business, I will be developing an individual product for Deaf people, or hearing people to use for their benefit, such as their home or in public with their peers etc.

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Appendix 1- Survey Coding

Football Experience Johnathan Jayne's Project

16

Responses

05:30

Average time to complete

Active

Status

View results

 Open in Excel ...

1. What Team do you play for currently?

[More Details](#)

 Insights

16
Responses

Latest Responses

"Colchester deaf football "

"N/a"

"St John's DFC"

 Update

4 respondents (27%) answered **Afan United** for this question.



2. Have you ever struggled to play for a Hearing football team or during a match? If yes, please explain how you have struggled (If you don't play for a Hearing team, leave it as N/A)

[More Details](#)

[Insights](#)

15
Responses

Latest Responses

"Yes"

"Yes, I was playing for school, I had struggle to hear what ref said, like if it w...

"Yes, communication on pitch, and group conversations off the pitch"

[Update](#)

4 respondents (29%) answered **communication** for this question.

hearing aids decision making play old teams communication on pitch
different ways teammates **communication** pitch hearing aid
team talks bit hard
sport pitch team mates hearing struggle game
conversations off the pitch communication barrier communication in attack

3. Have you ever struggled during training for a Hearing football team? If yes, please explain how you have struggled (If don't play for a Hearing football team, leave it as N/A)

[More Details](#)

[Insights](#)

16
Responses

Latest Responses

"Communication while break and warm up also referee "

"Yes, sometimes it would be hard if Ref was trying explain what we need to d...

"Yes, difficult understanding coaches providing info/instructions from afar. Es...

[Update](#)

3 respondents (20%) answered **coach** for this question.

pitch able difficult information from Coaches talks too fast group
hearing aid **difficult** training manager
not being able **raining** coach aid info/instructions good
understanding coaches Esp with hearing problems Ref
training that had sound

4. Have you ever struggled to play for a Deaf football team or during a match? If yes, please explain how you have struggled (If you don't play for a Deaf team, leave it as N/A)

[More Details](#)

[Insights](#)

16
Responses

Latest Responses

"No "

"No I don't have struggle, we use gesture and more visual more than sound."

"Used to, difficult to grab my teammates attention, understanding bsl"

[Update](#)

4 respondents (27%) answered **struggled** for this question.

Information/tactics teammates
communication on the pitch bsl
cup
football matches whistle **struggled** deaf team unable
easy communication deaf matches deaf players **Communication**
n't have struggle hearing aid attention difficult gesture and more visual

5. Have you ever struggled during training for a Deaf football team? If yes, please explain how you have struggled (If don't play for a Deaf football team, leave it as N/A)

[More Details](#)

[Insights](#)

16
Responses

Latest Responses

"Easy communication with referee and more understand manger while if the..."

"No, sometimes we have coach to actually show us first rather than explain, ..."

"No"

[Update](#)

6 respondents (40%) answered **No** for this question.

visual answer as number hard **Communication and awareness**
information team mates sign **No** pitch available at training
sign language coaches training deaf teams traning club
Same practice training methods ball interpreters available

6. If there is anything else you want to add that is related to football for example travelling to a match, or in the changing room in relation to a hearing impairment. Please add that information here so we can consider that as well for the future.

[More Details](#)

 Insights

10
Responses

Latest Responses

- "Hope they able more deaf awareness to make sure go flow with deaf peopl...
- "sometimes in changing room, it would be hard to get information like if coa...
- "No longer enjoy wearing hearings aids in a game for hearing team, becaus...



Appendix 2 - Screenshot of meeting taken Place

- Kathryn Penaluna



Kathryn Penaluna

To: John Jayne (1902491); Tom Baker <Tom.Baker@murgitroyd.com>

Cc: Matthew Archer

Good morning, Tom and John

Following on from conversations with both of you, I am now very pleased to introduce you to one another, with a view to meeting up to discuss potential protection of John's product.

John – I believe you would find prefer face to face preferable, Tom does a meeting in Swansea work for you? If not, we can organise a teams call initially?

I have a relatively free diary next Monday 7th and Tuesday 8th, if either of those days work?

John your advisor and signer are obviously most welcomed to join.

I look forward to hearing from you.

With best wishes

Kath

Kathryn Penaluna MBA, MA, PhD, FRSA
Professor in Enterprise Education
Head of Enterprise and Director,
International Institute for Creative Entrepreneurial Development.
Technium 1, 1, Kings Road, Swansea, SA1 8PH
Email: kathryn.penaluna@uwtsd.ac.uk

Athro Cysylltiol Addysg Fenter
Pennaeth Menter,
E-bost: kathryn.penaluna@pcydd.ac.uk





Kathryn Penaluna

To: John Jayne (1902491); Matthew Archer

Cc: adeyblakeinterpreting; leannesarastephenson@outlook.com; Dylan Williams-Evans; Li Ling Tang

Good morning, John (and all copied in),

John and Leanne, it was great to have met you and I am very pleased that John has decided to take forward his product ideas with the University. My sincere apologies for the delay in this follow up email, whilst I have been working away from the office.

As mentioned, we have various expertise within our team, and I am very pleased to introduce you all to one another. Li is our first point of contact for guidance on intellectual property and Dylan leads on our business support, managing investments from our Futures Fund.

Li and Dylan – John is a Master student in Product Design, who has designed a product that has received significant interest from potential stakeholders. Matt is fully supportive, aligning this development with John's academic studies.

Li – could you liaise directly with John to arrange a face-to-face meeting in Swansea to discuss intellectual property aligned to John's product please. For info, the link below takes you to a search aligned with John's activities. Noting that another party has contributed to its development.

https://worldwide.espacenet.com/publicationDetails/biblio?DB=EPODOC&II=0&ND=3&adjacent=true&locale=en_FP&FT=D&date=19911031&CC=WO&NR=911662441&KC=A1

Dylan – could you lead on supporting John with the potential commercialisation of his product please? With regards meetings, John is deaf, so face to face is preferable.

I will leave you all to liaise but if I could be copied into any emails that would be great.

With best wishes

Kath

Kathryn Penaluna MBA, MA, PhD, FRSA
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Head of Enterprise and Director,
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Rydym yn croesawu gohebiath yn Gymraeg a Saesneg.
We welcome correspondence in Welsh and English.



Kathryn Penaluna

To: leanne stephenson

Cc: Johnathan Jayne

Good morning Leanne and John

It was great to see you on Friday and Leanne, my apologies for the delay in responding. Yes, you are spot on, this is the form and John needs to complete as an individual.

John- could you provide a write up, of the meeting with Tom and send to me copying in Matt please? In essence, just a paragraph or two, outlining the questions you were asked and next steps. Bullet points are fine.

in your own words, but I am sharing my notes should they be helpful.

3 options to consider:

1. Patent
For a patent to be considered, it needs to be evidenced that a technical problem has been overcome, confirming what is new. A new application for an existing product doesn't make it eligible.
2. Design rights – there is potential to register, based on how the product looks and not how it functions.
3. Trademark – the graphics and branding of the product.

Next steps:

- Obtain a standard NDA from the UKIPO website and adapt, to be used when sharing information about the product.
- Obtain a confirmation statement/agreement from James, confirming that any existing IP already generated belongs to you, as well as any further IP created.
- Liaise with Liam Mee for branding advice. (John only include this if you want to, you mentioned Liam when we were leaving).

The purpose of your piece is twofold, firstly for your portfolio of evidence that you will submit for your studies, and secondly, I will take extracts from it, to create your case study.

Any queries at all, please get in touch.

With best wishes

Kath

Dear Kath and Matt,

Thank you for the meeting yesterday.

My understanding from the meeting is that the university can still support me but not financially at the moment as all the budgets are currently frozen.

The steps that I took away from it are that:

1. I need to contact Steve in the electronics department to see if he can help at all. (Please could I have his email so I am able to do this). **Kath will liaise with Steve in the first instance, a meeting being arranged for week 13th November.**
2. I need to have a conversation with my advisor about mahesh and his role in the business. **I would suggest liaising with Dylan/Rebecca initially and we will then signpost you to someone external to provide independent (from the University advice). There is an organisation called Business Wales who run regular events.**
3. I need to have a conversation with mahesh about what he is able to do to help me and potentially a collaboration.
4. I need to look into spin out university businesses. **Spin outs are for academics taking forward their research, that universities invest in. Here is a document outlining some of the practicalities – it is detailed as spin outs are complex. Noting that many of our processes and procedures are under review, I am not sure whether this route will be available, not least because John isn't an academic. However, there is useful information in here for any business.**
https://www.praxisauril.org.uk/sites/praxisunico.org.uk/files/7%20-%20Spinout%20Transactions_1.pdf
5. I could potentially look into the invitation centre which works with people who make health care products and consider other applications of my product. **This is our Assistive Technologies Innovation Centre** <https://www.uwtsd.ac.uk/atic/> **Matt knows the team there well. I will take forward initial conversations and update you.**
6. I need to look into external funding. **Liaise with Dylan on this.**

...

1. I need to focus on my assessment and use my research in it. **Your studies and achieving your Master is the priority.**
2. I need to do the final design of my band and look into protecting the design rights. **From our conversation yesterday, I observed that you need to have the dimensions of the technical components required to inform your final design/aesthetic solution.**
3. I need to contact Rebecca about the business course and looking into subtitles so it's acceptable to me. **Rebecca will gladly help.**

↩ Reply

↩ Reply all

➡ Forward

- Li Ling Tang

☺ This message was sent with Low importance

LT Li Ling Tang
To: John Jayne (1902491)
Cc: Kathryn Penaluna
Hi John,

It was a pleasure meeting you last week.

As promised, please see the following links:

1. Register your design.
- Before you apply, you should conduct a search of the design registers to check if anyone else has registered your design.
- <http://finder.2dox2doxdesignregisters2dox2designs2dox2govgovuk2dox2www.gov.uk/> Find a registered design - GOV.UK ([www.gov.uk](http://finder.2dox2doxdesignregisters2dox2designs2dox2govgovuk2dox2www.gov.uk/))
 - <http://finder.2dox2doxdesign2dox2overviews2dox2govgovuk2dox2www.gov.uk/> Register a design - Overview - GOV.UK ([www.gov.uk](http://finder.2dox2doxdesign2dox2overviews2dox2govgovuk2dox2www.gov.uk/))
 - <http://Process2dox2for2dox2applying2dox2for2dox22dox2designs2dox2govgovuk2dox2www.gov.uk/> Process for applying to register for a design - GOV.UK ([www.gov.uk](http://Process2dox2for2dox2applying2dox2for2dox22dox2designs2dox2govgovuk2dox2www.gov.uk/))
 - <http://Intellectual2dox2property2dox2Designs2dox2govgovuk2dox2www.gov.uk/> Intellectual property: Designs - detailed information - GOV.UK ([www.gov.uk](http://Intellectual2dox2property2dox2Designs2dox2govgovuk2dox2www.gov.uk/))
2. Apply for a patent.
- [Search for a patent - GOV.UK \(\[www.gov.uk\]\(http://Search2dox2for2dox2a2dox2patent2dox2govgovuk2dox2www.gov.uk/\)\)](http://Search2dox2for2dox2a2dox2patent2dox2govgovuk2dox2www.gov.uk/) - to check if a similar patent to your invention already exists.
 - [Apply for a patent - Overview - GOV.UK \(\[www.gov.uk\]\(http://Apply2dox2for2dox2a2dox2patent2dox2govgovuk2dox2www.gov.uk/\)\)](http://Apply2dox2for2dox2a2dox2patent2dox2govgovuk2dox2www.gov.uk/)
 - [Apply for a patent - Prepare your application - GOV.UK \(\[www.gov.uk\]\(http://Apply2dox2for2dox2a2dox2patent2dox2govgovuk2dox2www.gov.uk/\)\)](http://Apply2dox2for2dox2a2dox2patent2dox2govgovuk2dox2www.gov.uk/)
 - <http://Patent2dox2facts2dox22dox2sheets2dox2govgovuk2dox2www.gov.uk/> Patent fact sheets - GOV.UK ([www.gov.uk](http://Patent2dox2facts2dox22dox2sheets2dox2govgovuk2dox2www.gov.uk/)) - Find out how to prepare your description, drawings, claims and abstract.

I hope these links are useful for you.

Thank you.

Kind regards,
Li

Li Ling TANG
Rheolwr Ymgysylltu a Datblygu
Menter Rhybgiadol
*Athrofa Ryngwladol ar gyfer Datblygiad
Entrepreneuraidd Creadigol*

E-bost: l.tang@pcydd.ac.uk

**International Enterprise Engagement
and Development Manager**
*International Institute for Creative
Entrepreneurial Development*

Email: l.tang@uwtsd.ac.uk



- **Dylan Williams-Evans**

 Dylan Williams-Evans
To: John Jayne (1902491)
Cc: leannesarastephenson@outlook.com; adeyblakeinterpreting

Hi John,

It was great to meet you earlier and both Leanne and Adey as well. I hope you found the meeting beneficial.

Please find a link below to information in relation to the various Business Grants that are available to Swansea start-ups/businesses.

<https://www.scvs.org.uk/news/spf-bsgi-apr23>

As discussed I shall be in touch once my colleague Kath has heard back from Tom Baker – Patent Attorney to arrange a meeting to utilise his knowledge, expertise and advice as to the best way forward with regard to protecting your Intellectual Property.

Hope you have a great weekend.

Kind regards

Dylan



Dylan Williams-Evans

To: John Jayne (1902491)

Cc: leannesarastephenson@outlook.com; adeyblakeinterpreting



Thu 20/07/2023 12:43

Hi John,

My advice would be that there would not be a guarantee that the people whom are on holiday will be able to help, with that in mind I would not 'end' your 'working relationship' with James just yet (they may not be able to help due to capacity issues as they are missing a member of their team and they are taking on some of their workload). Only once you have confirmation that the University staff from the electronics department can help would I look to cease engaging James to undertake work for you, but please remember if you do this you should aim to possibly postpone working with him rather than ending it as you need to ensure that you could still access his services in the future if need be.

Hope that helps

Kind regards

Dylan

...

I understand. Thank you.

Understood. Thank you.

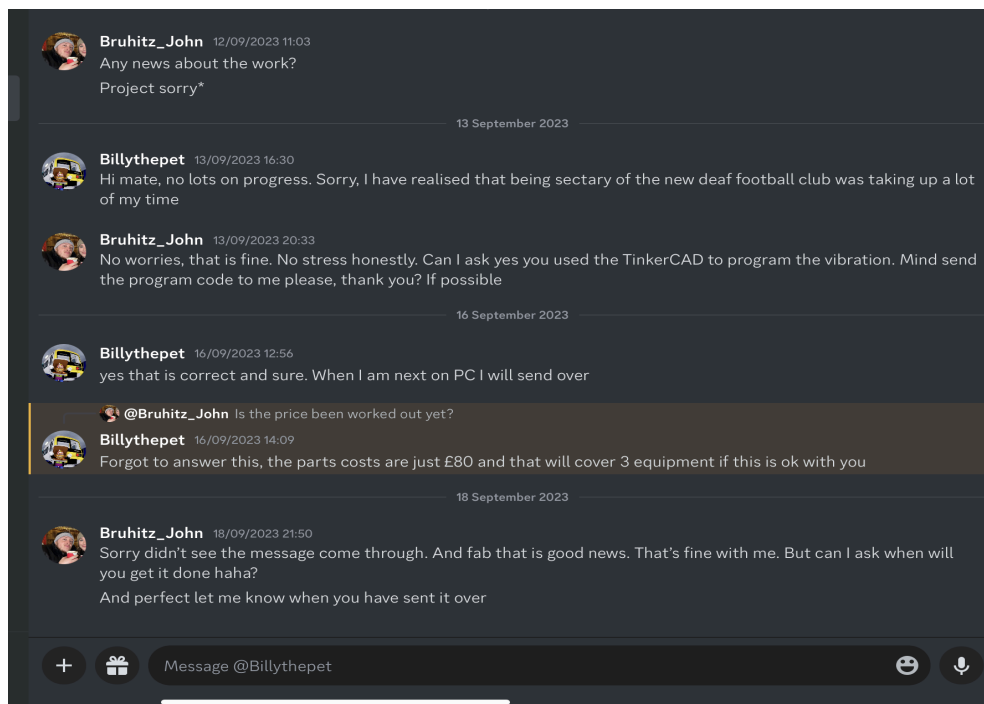
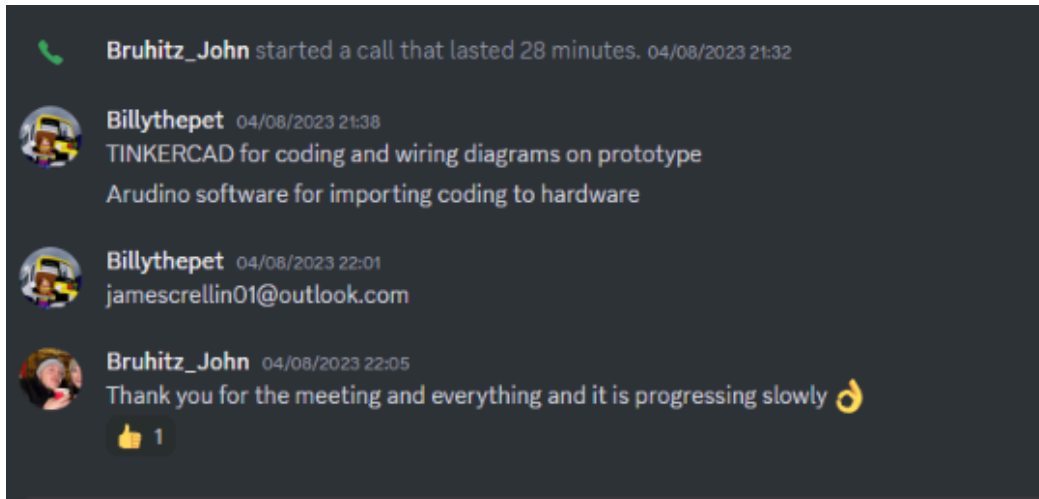
Understood. Thanks.

↩ Reply

↩ Reply all

➦ Forward

- James Crellins



- Mahesh Kannath

MK

Mahesh Kannath <mahukannath@gmail.com>

To: John Jayne (1902491)

Cc: Kathryn Penaluna; leannesarastephenson@outlook.com

You don't often get email from mahukannath@gmail.com. [Learn why this is important](#)

RHYBUDD: Deilllodd yr e-bost hwn o du allan i system E-bost Prifysgol Cymru Y Drindod Dewi Sant. Peidiwch ag ateb, na chlicio ar ddolenni nac agor atodiadau oni bai eich bod yn adnabod cyfeiriad
WARNING: This email originated from outside University of Wales Trinity Saint David's Email System. Do not reply, click links or open attachments unless you recognise the sender's email address as

Hi John,

To design and develop your project I believe the first stage is to develop a functional prototype using the right components.

As per the descriptions you gave, if we want to notify the players, we can use radio frequency to communicate between the referee and players. A referee can use any push button based equipment to trigger the RF waves and these waves can essentially trigger the other end of the device. For e.g. when the referee pushes the button then a vibrator attached on the players body triggers the alert and notify. I believe this would be a better method than others considering the facts. The range of RF frequency transmitters is important here to cover up the field length. The Arduino board mentioned below is sufficient enough to transmit the signal for a standard football field considering the fact that it can transmit the waves upto 100 meters. The standard football field length is from 90 meters to 120 meters. Here we have the flexibility of scaling up or down the frequency capacities with Arduino boards.

1. Hardwares need
 - a. Arduino Uno / Nano
 - b. Receiver and transmitter modules (433mhz)
 - c. push button switch
 - d. vibrator sensor

Please find the links below to understand its working in detail. These articles show how these modules work and how we can connect other components.

1. <https://randomnerdtutorials.com/rf-433mhz-transmitter-receiver-module-with-arduino/>
2. <https://www.electronicshub.org/arduino-rf-transmitter-receiver-module/>
3. <https://robocraze.com/blogs/post/how-433mhz-rf-module-works-interfacing-with-arduino>

Please note that link no.3 gives a description of a simple push button press trigger from the transmitter side and an LED at the receiver side.

Which means in our case when the referee pushes the button then it will trigger the vibrator on the player. This could be the simple solution which we want. in this example, instead of the LED light we can connect a vibrator.

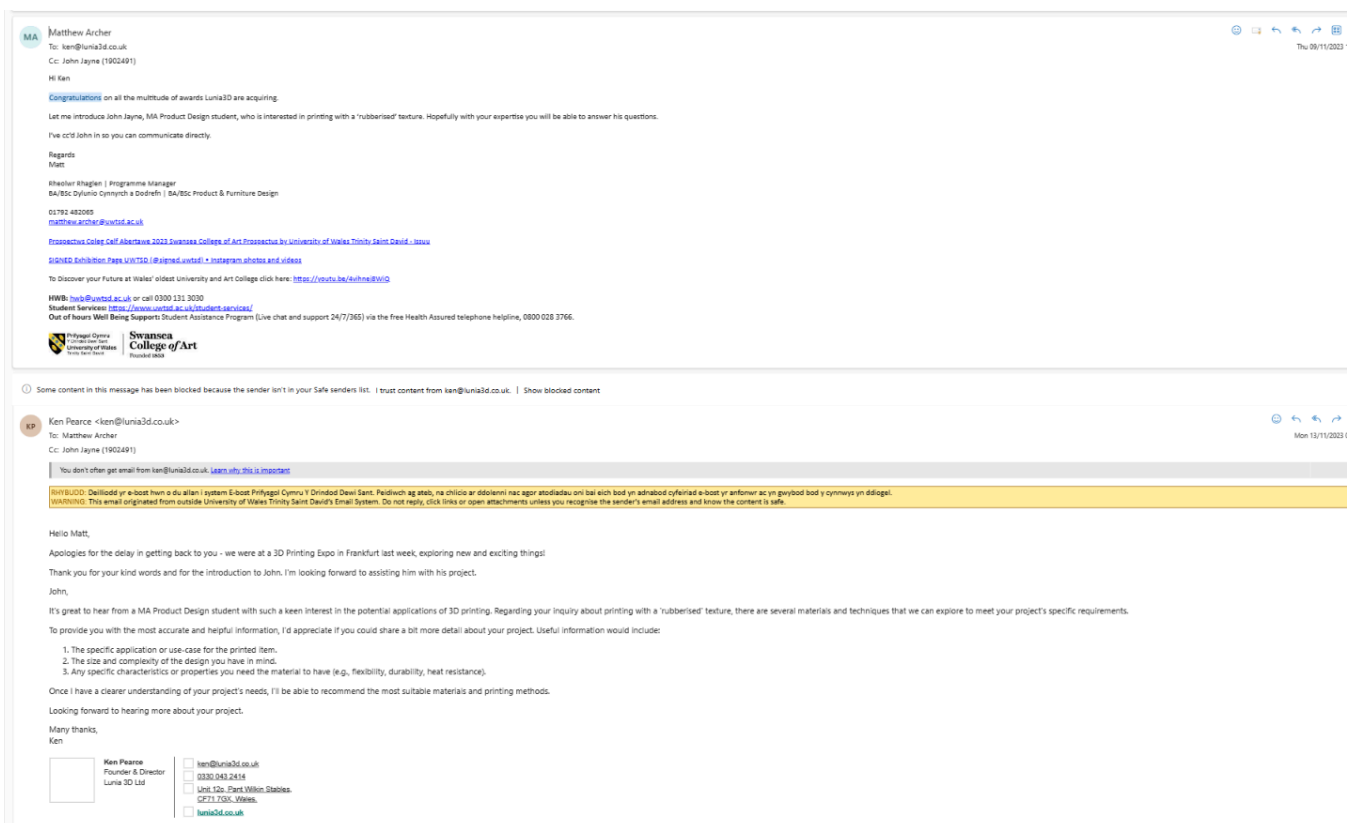
Could you please check with Steve in the electronics lab regarding the components? If it's available then it will be easy for you to proceed.

Once the components and boards are ready then you can make some experiments which will eventually give you more ideas to work with. Once you get a grip on the solution then you can later think about casing and other things for the demo. I can also help in between.

Many thanks & regards

Mahesh

- 3D Lunia
- Protolabs



- **Gary Jones**

JJ

John Jayne (1902491)

To: Gary Jones (FACE)

Cc: Matthew Archer

Hey Gary,

This is my emails for the university so we can stay in contact to discussed about the meeting we had yesterday. Looking forward to hear back from you soon.

John

1902491@student.uwtsd.ac.uk

MA

Matthew Archer

To: John Jayne (1902491); Gary Jones (FACE)

Morning Gary

John fed back to me & said your meeting yesterday was extremely positive. Any guidance, assistance gratefully received.

Thanks

Matt

...

Still working on it.

It went well.

I have not heard anything.

↩ Reply

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