

ADVANCE

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The Brief

Create an innovative product that informs Gaelic Footballers about the importance of mental preparation, while also offering them guidance through their training.

MENTALITY

Many Gaelic Footballers are unable to perform to the best of their ability because of a weak mentality. In some cases this can cause players to perform to only 30% of their full capability, this drop off in performance can be the difference in winning and losing.

The Problems



GUIDANCE

Players feel disregarded as they lack guidance from coaches and are unaware of how they can improve their mental skills in order to enhance their performance. Our studies have shown that 74% of Gaelic Footballers feel that they do not have adequate access to information about performance psychology or mindfulness in their clubs.

MY STORY

As part of my original user investigation I looked into different problems within Gaelic Football, as it's a sport that I am deeply passionate about. Through conducting numerous interviews with players and coaches I was stunned by the number of occasions that mentality came up as an issue. My own personal experience with the mental side of the game impacting on my performance in the big moments allowed me to empathise with the problems that my target market were facing. I understood that the traditional and sometimes old fashioned nature of the GAA had, as one of my interviewees put it, made "coaches think their only job is to give players a kick up the arse". This attitude towards a very common and complex problem was deeply unsettling for me and I was determined to do my utmost to create a solution to help others understand and improve their mentality in sport.





Product Vision

Empower Gaelic Footballers to perform to their maximum potential by educating them about how to reach the flow state, we hope this will help players avoid feeling like this after a big game.

WHAT IS FLOW?

Flow is a feeling of ecstasy that is experienced when participants are completely engaged in the task they are performing, any distractions are temporarily suspended and the person is wholly engulfed by their experience. They are completely involved in what they are doing and feel clarity with each step they must take to complete the task at hand. This phenomenon has been researched at great detail by renowned psychologist, Mihály Csíkszentmihályi. He has conducted over 8,000 interviews with participants from many different walks of life to gain deeper understanding of this phenomenon.

In sport, grounding techniques are commonly used by top class athletes such as Serena Williams and Richie McCaw to help reach this serene state of mind where tasks feel effortless. It is our hope to educate Gaelic Footballers about these techniques and monitor their performance to give them the best chance of entering the flow state.



Richie McCaw

Former All-Blacks, Rugby World Cup winning captain.



Mihály Csíkszentmihályi

World renowned psychologist who recognised and named flow.



Serena Williams

Former world No.1 tennis player and 23 Grand Slam singles winner.

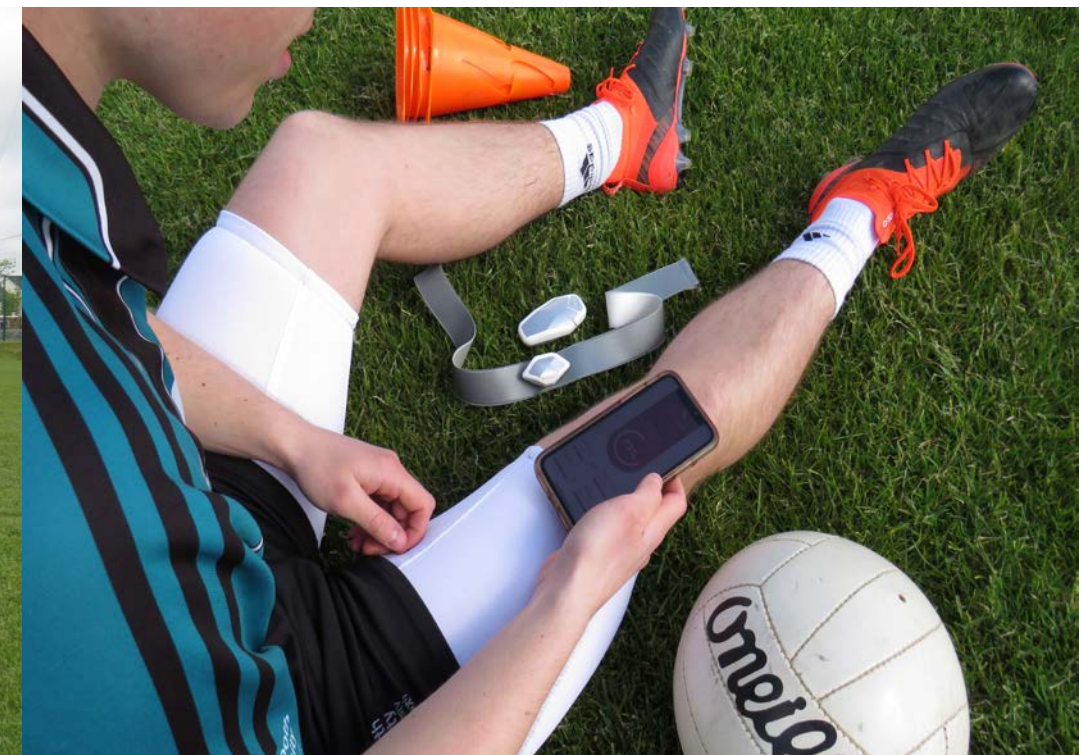
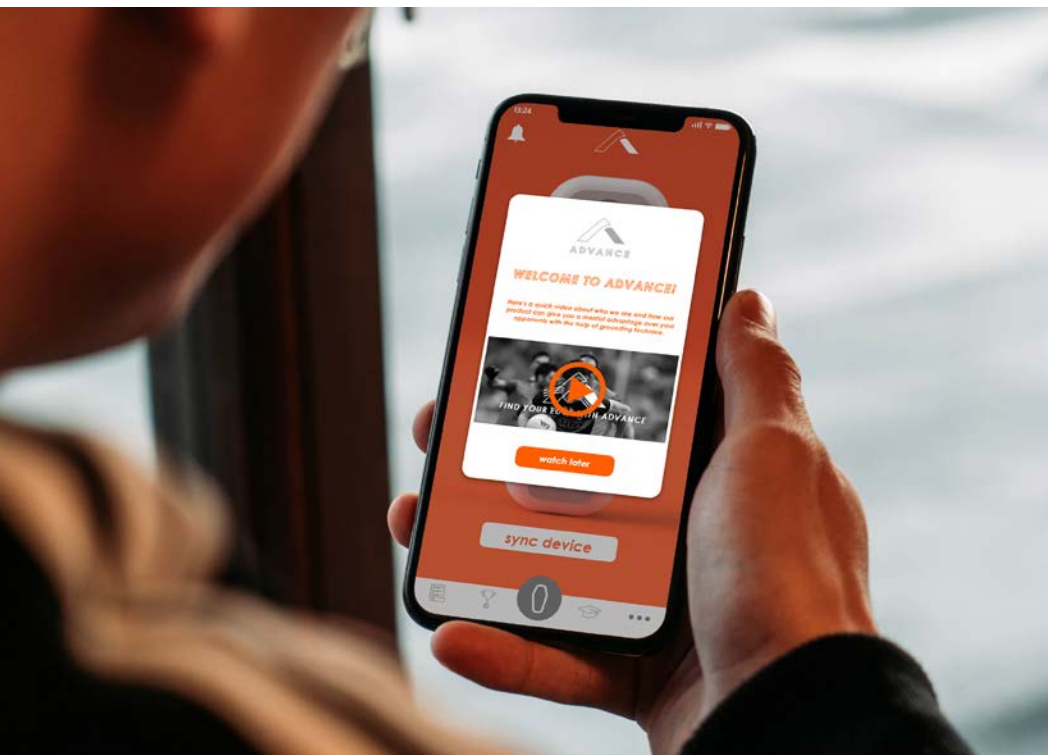




WHAT IS IT?

Advance is an individual performance tracking system that aims to help Gaelic Footballers improve their mental and physical strength. It does this by using discrete, noninvasive tracking equipment worn underneath the players clothing. This tracking equipment consists of a Reset Button located in their bicycle shorts and a Heart Rate Monitor worn across their chest. This equipment monitors their performance and relays the data collected by syncing the devices with our companion app.

HOW DOES IT WORK?



EDUCATE

With our companion app we will teach Gaelic Footballers about grounding techniques through instructional videos.

IMPLEMENT

With their learnings from the companion app we will ask players to implement grounding techniques while they play the game.

REVIEW

After their game or training session the player reviews their performance by syncing their device with the companion app. Here they can see if they used the intervention of the Reset Button at the correct times to stay in the flow state.

COMPANION APP

The purpose of the Advance companion app is to serve as an educational tool. This app will teach Gaelic Footballers about grounding techniques and show them how to implement them while they are playing the game. It will also offer players guidance as they will sync their device with the app to gain constructive feedback through the data collected by the Reset Button and Heart Rate Monitor. Overtime this will allow players to improve their mental and physical performance as it holds them accountable and accurately tracks their progress.



OUR TARGET USER

The Irish Sports Monitor 2017 Annual Report stated that a total of 2% of Ireland's population played Gaelic Football (Sport Ireland, 2017). If we take this statistics to be true today, we can estimate that there are **97,600 Gaelic footballers** in the Irish market. Our product is aimed at **16-24 year olds**, this is because they are the most active age group in Ireland with **68.3%** of all 16-24 playing atleast one field sport.

MARKET SEGMENTATION

In my market research I have further segmented the market through conducting a survey of 79 participants. In doing this we split the market into four segments varying from passionate, Avid Gaelic Footballers to casual, Rare Gaelic Footballers. We believe our main target market would be the **Avid Gaelic Footballers** who make up **18%** of participants. These players would be the early adopters who we feel would influence the majority group of Occasional Gaelic Footballers who made up 51% of people surveyed.



BLUE OCEAN OPPORTUNITY

Currently there are no performance tracking systems that offer players insight and guidance about the mental side of the game, with companies such as **Stat Sport** merely focusing on players physical attributes. This presents a fantastic opportunity as others have overlooked the mental side of the game, even though a failure to prepare mentally can completely undermine a players physical capabilities. As Caroline Currid has said “**psychological preparation needs to be taken as seriously as physical preparation**”. This failure to recognise the value of this market by others will allows us to benefit from it’s untapped potential.

NATIONAL & INTERNATIONAL GROWTH

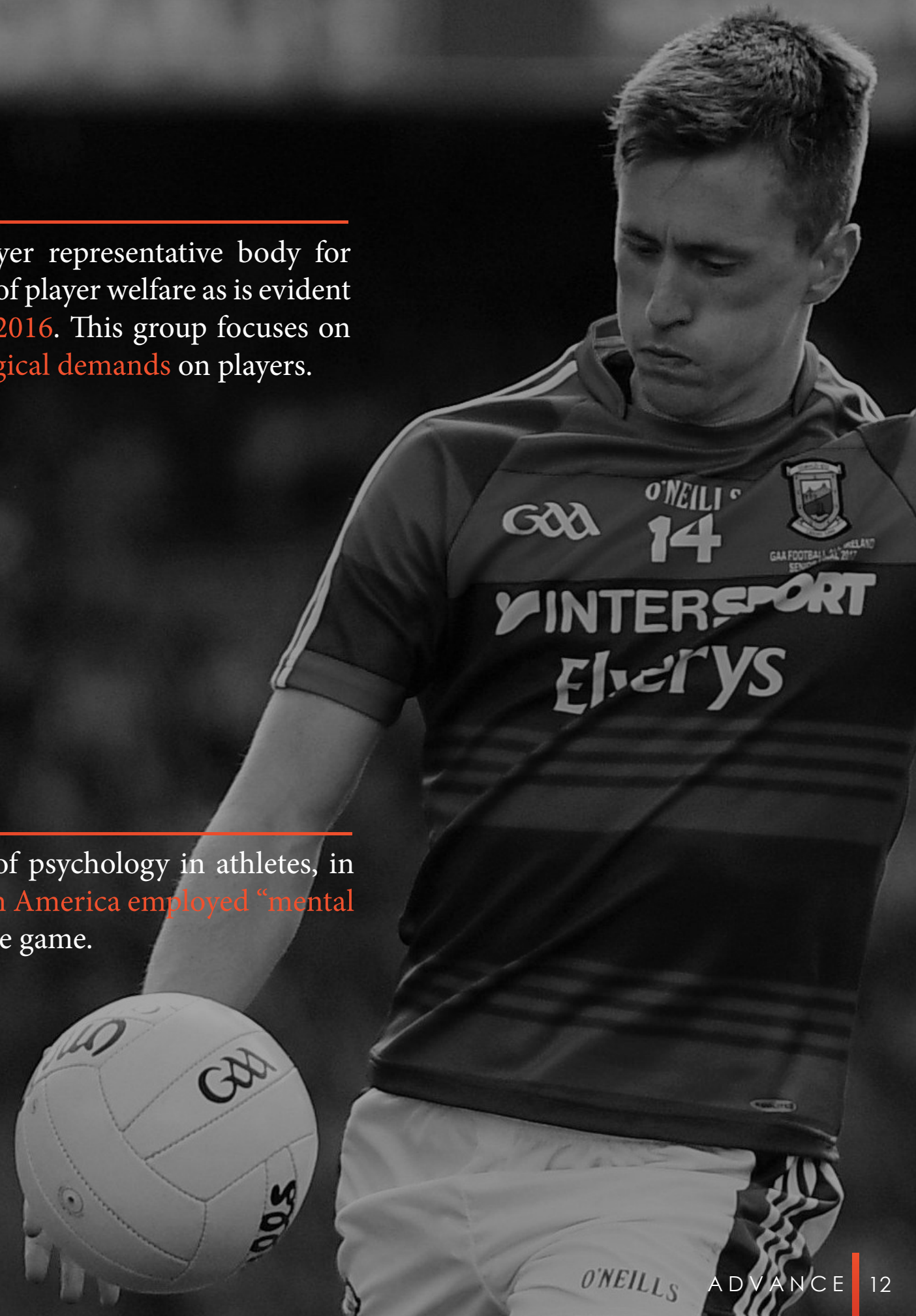
In the future we hope to expand into sports such as **Hurling, Camogie, Rugby and Soccer**, these sports are played by about **6% of Irelands population** which amounts to neary **300,000 people**. In doing this we would nearly triple our potential market. This also offers the possibility to expand internationally, with this opporunity we could look at sports like Soccer which has over **270 million players worldwide**.

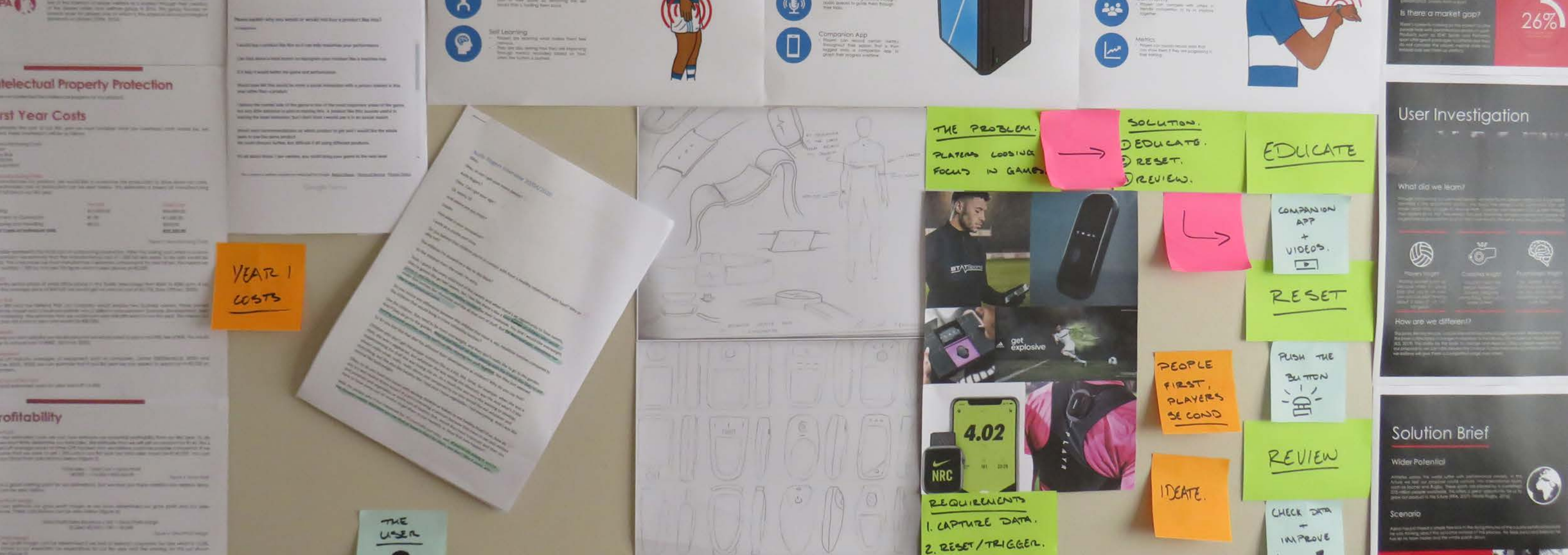
PLAYER WELFARE

The Gaelic Players Association are the officially recognised player representative body for intercounty Gaelic footballers and hurlers. They are at the forefront of player welfare as is evident through their creation of **the players safety and welfare group in 2016**. This group focuses on several issues for players one of which is the **physical and psychological demands** on players.

PSYCHOLOGY IN SPORT

Across the world people are increasingly seeing the importance of psychology in athletes, in 2018, for instance, a record **27 of 30 Major League Baseball teams in America** employed “**mental skills coaches**” to help players deal with the mental challenges of the game.





MY CREATIVE PROCESS

As part of my creative process I incorporated the Stanford d. School methodology to design thinking. In using this methodology I empathised with my user, defined the problems that they face, went through the ideation process to create possible solutions to their problems and then prototyped and tested these ideas. My aim throughout this process was to create a user centered product that educated Gaelic Footballers about the importance of performance psychology in sport in a noninvasive way.



EMPATHISE



DEFINE



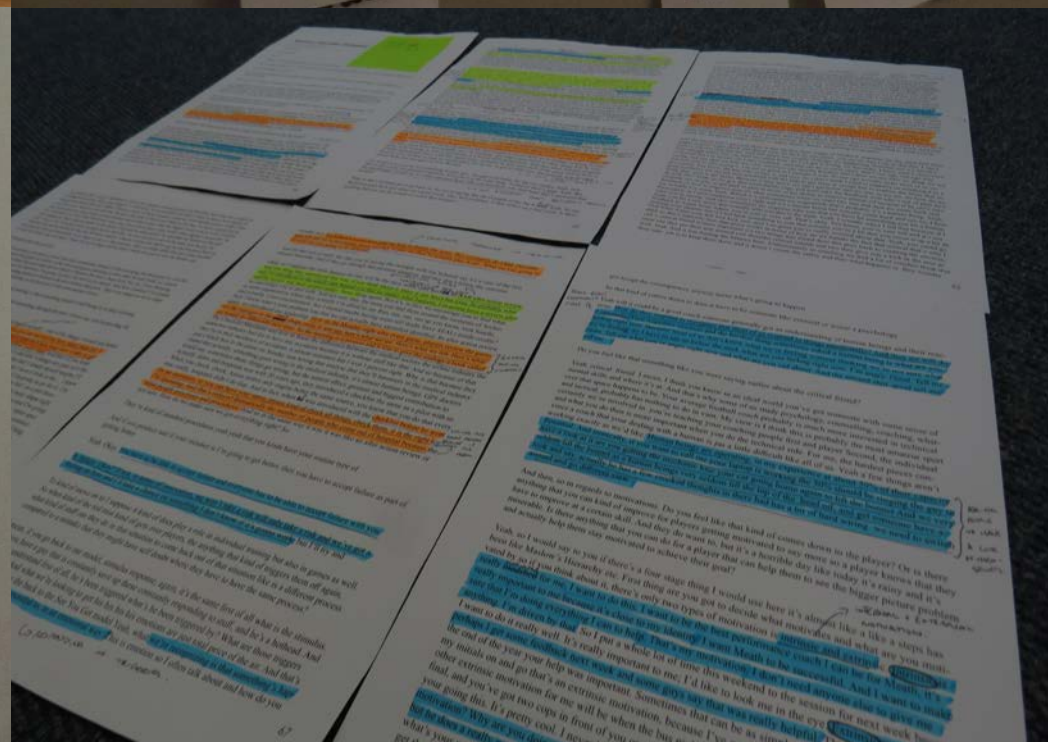
IDEATE



PROTOTYPE



TEST



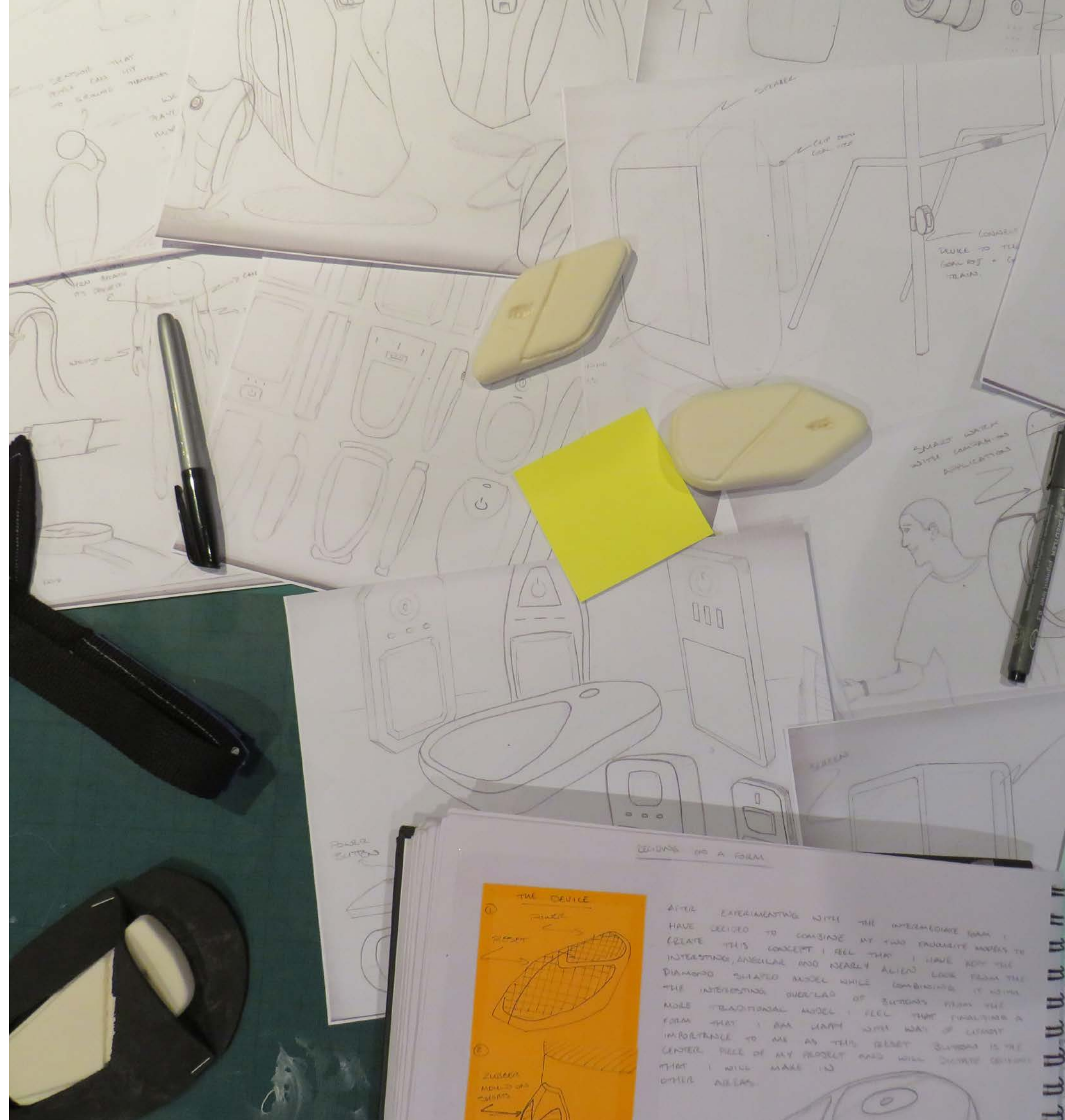
USER INVESTIGATION

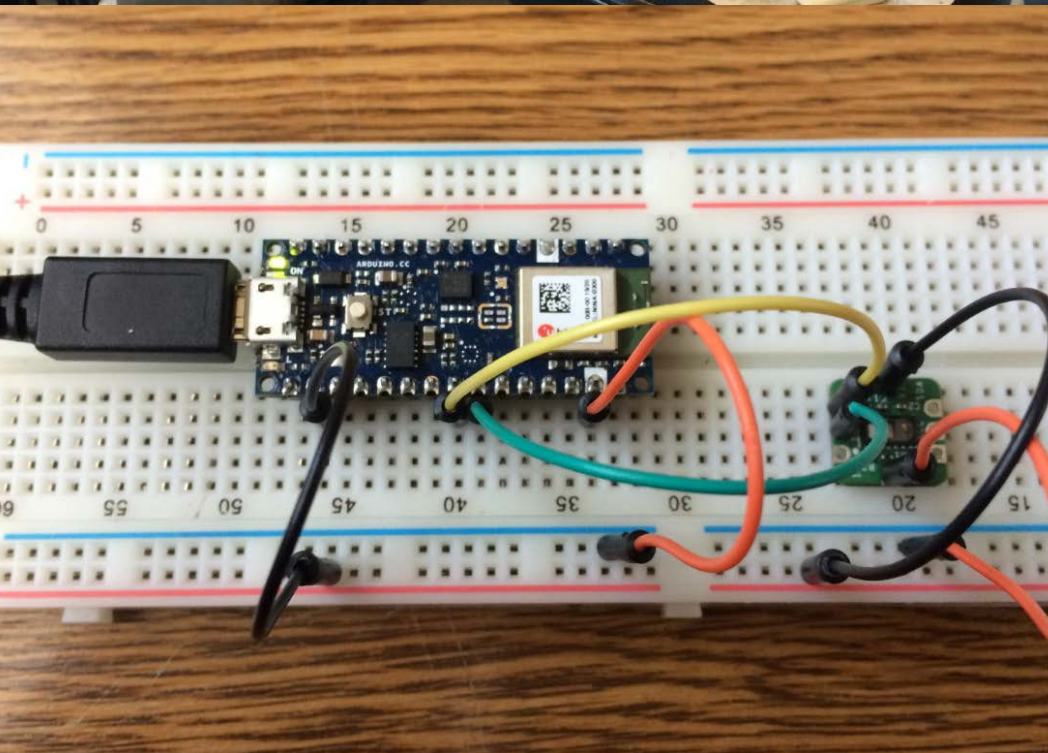
To identify the problems that face Gaelic Footballers today I conducted a thorough user investigation. I did this by directly interacting with my target market through an online survey and conducting observations. I also individually interviewed 7 participants, these consisted of 4 players, 2 coaches and the Meath Senior Football team's performance psychologist. Through these methods I found that many players struggle with the mental side of the game and that Gaelic Footballers lack guidance on the topic of performance psychology.

To empathise with these issues I used techniques such as empathy mapping, affinity mapping and story boarding to understand the issues in greater detail. This also helped me to see where the pain points could arise for the users and understand it from their point of view. Through these methods I felt that I gained a comprehensive understanding of the problems and how they affected my users.

IDEATION

With the information gathered from my user investigation that allowed me to empathise and define the problems that my users faced I moved on to the ideation phase. In this phase I used brainstorming techniques individually and also collaboratively with people such as Mary Galvin who is a psychologist in the Maynooth University's, Design Innovation department. Through these measures I created multiple concepts of which I presented 3 to my lecturers. Here I recieved guidance on these concepts and decided to move forward with my idea based around grounding techniques.





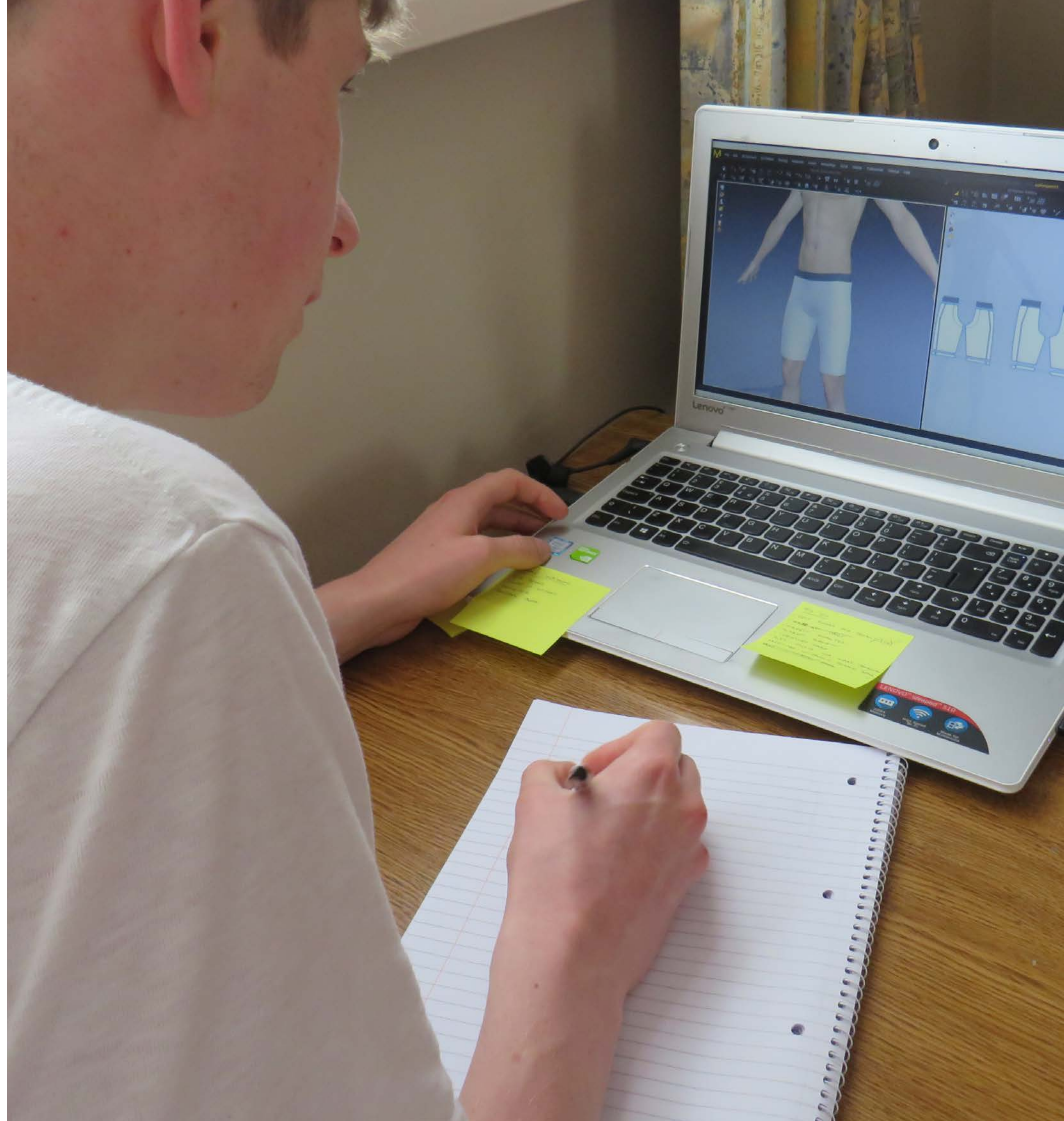
SKETCH PROTOTYPING

Developing on from my ideation phase I created a wide variety of prototypes, this process allowed me to explore the possibilities of my product in a three dimensional space and really helped me narrow in on what my final design would look like. In doing this it helped me to decide on the form that I wanted to carry forward for my Reset Button and Heart Rate Monitor. To prototype the shorts, harness and pocket for the Reset Button I got the chance to explore many soft body materials. I used materials such as silicon, polyester and neoprene to replicate different material properties that I felt could be of benefit to my product.

To create basic prototypes of the technology incorporate in my product I enlisted the help Electronic Engineer lecturer, Bob Lawlor. I used an Arduino Nano BLE and a Pulse Oximeter to replicate how the heart rate variability would be measured with my product.

DIGITAL PROTOTYPING

In order to speed up my prototyping process for creating garments I decided to incorporate a CAD software to help me. To do this I used a program called Marvelous Designer, this program allowed me to quickly create flat patterns of my bicycle shorts and harness that I could then simulate to see how it would on a real person. In using this program I created many iterations of my garments and designed my own flat patterns that were used to create my final prototype.





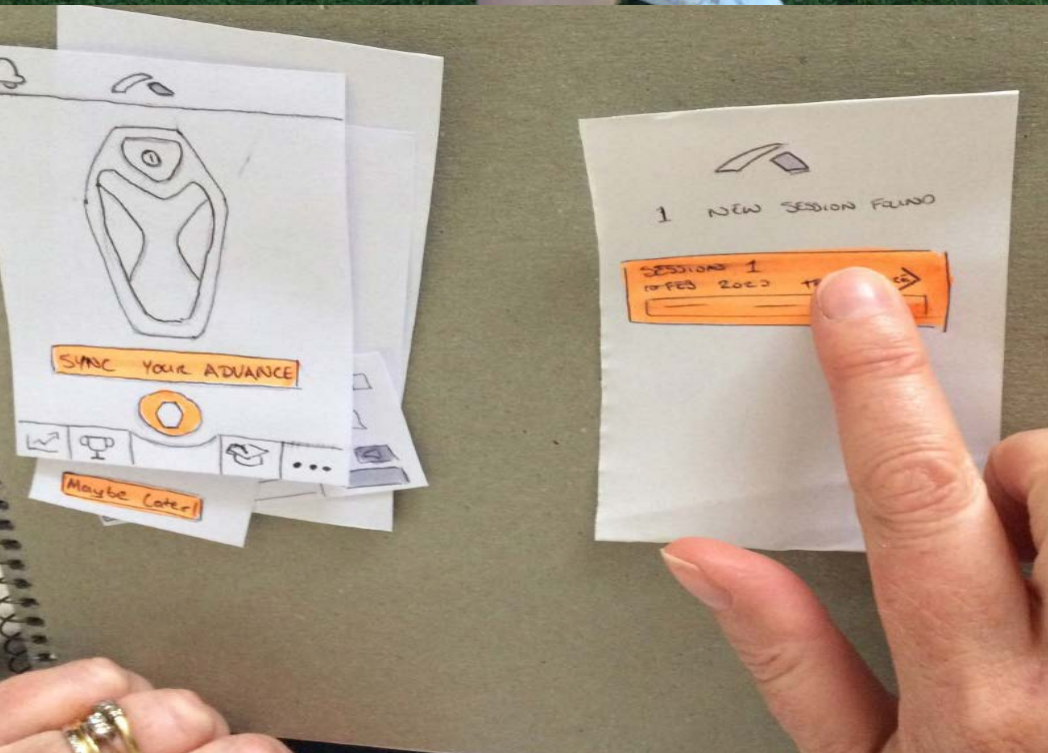
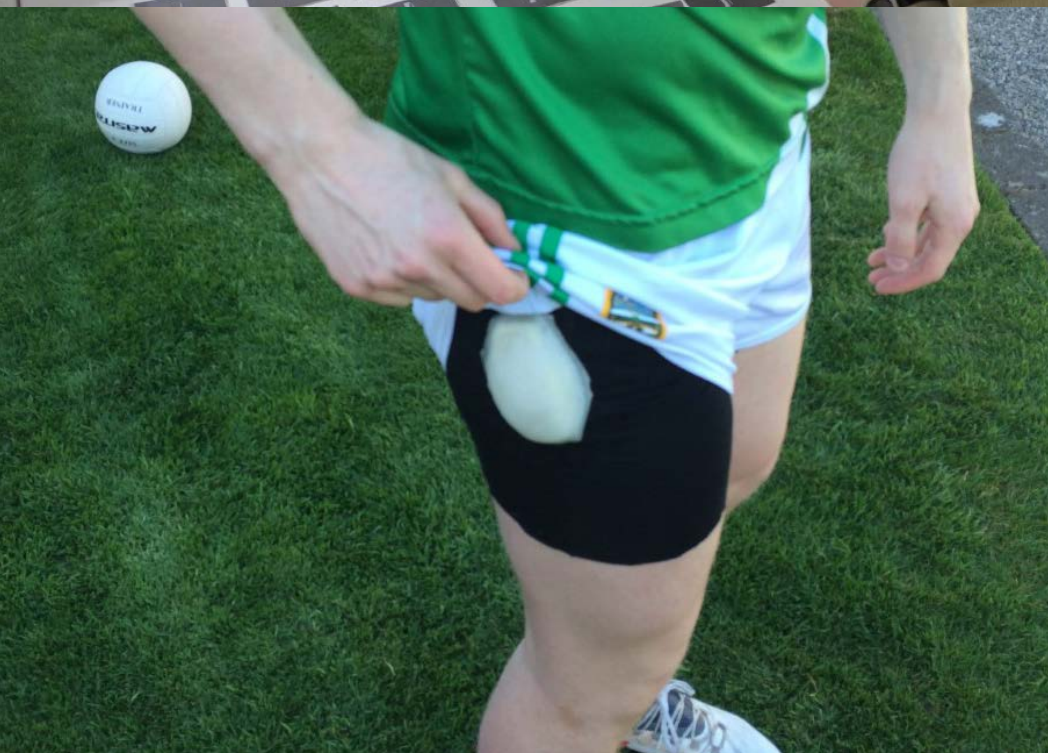
TESTING

Throughout my design process I strived to test my ideas and prototypes as much as possible. This was done to identify areas that needed to be improved and gain feedback from my target users.

Through testing my prototypes I found that my garments were noninvasive for the user while playing the game. In my paper prototypes issues in my user flow became clear to me that allowed me to improve my apps design.

I also found that players were excited about my idea and associated positive words such as “empowering” and “motivating” with it. In validating my assumptions around grounding techniques, it was proven that people have the ability to manage their stress. This was done by mimicing a stressful situation through exercise and using grounding techniques to bring people back to a relaxed state.

Finally as proof of concept I asked a Gaelic Footballer to implement grounding techniques and record data on their performance. The results from this showed a 20% increase in the players perception of their performance which is a clear indicator of a boost in confidence. We can conclude that players who feel confident play better those who feels self-doubt.



TECH VALIDATION

Despite my best efforts I was unable to create a fully working prototype of my concept. With this in mind I have tried to validate the technology required for a working model through research. This research has shown me that stress levels are commonly monitored through measuring a persons heart rate variability. In laymans terms heart rate variability is the time elapsed between each individual heart beat.

To measure a persons heart rate variability a pulse oximeter is commonly used, these can be found in most smart watches. This oximeter shines a light through the users skin into a blood vessel. The light then reflects back into a sensor in the oximeter which records the time elapsed between the blood passing through the blood vessel. This allows the device to determine the time elapsed between each heart beat, which in turn allows it to determine the users heart rate variability.

A Finnish company called Firstbeat (who own the licensing to this technology) license it's use to Garmin, Samsung and Sony. Their technology is extremely accurate is well regarded by the National Centre for Biotechnology Information (NCBI). This is supported by the NCBI's meta-analysis, in which they analysed results from multiple scientific studies to determine it's accuracy.

Garmin Quatix 6

This Firstbeat licensed watch incorporates 18 Firstbeat features, one of which is measuring heart rate variability.





FINAL PROTOTYPE

To create my final prototype I firstly made computer animated versions of my product on Fusion 360 and Marvelous Designer. I then used my Fusion 360 files to create 1:1 replicas of my CAD models. This was done with the help of Anthony Cleary from Maynooth University and John Enright from the Irish Manufacturing Research facility in Mullingar, Co. Westmeath. These 3D printed prototypes accurately represented my products aesthetics and material properties with the help of an Ultimaker and Carbon 3D printer.

To create the soft body elements of my prototype I used my sewing skills to fabricate the harness. To assist with the complex construction of the bicycle shorts I enlisted the help of a dress maker. She completed the assembly of these shorts from the flat pattern that I designed.

