

# ONEUP

**A DATA GATHERING & ANALYTICS APP FOR THE NBA**

**ERIN BALDERSON ▶**

SENIOR THESIS DOCUMENT

HER-V 413: DIGITAL EXPERIENCE DESIGN II

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# THE PROBLEM



## **PROBLEM SPACE**

Many industries today are attempting more systematic methods when it comes to decision-making. “However, no other industry has the same types of analytical initiatives underway as the domain of professional sports” (Davenport). Unfortunately, “even when considerable data and analytics are available to support key decisions, the [owners, managers, coaches] may not employ them over their intuition and experience” (Davenport). Considering this information, it is important for teams to take advantage of advancements in data gathering technology which would provide more predictive and prescriptive data, information that team staff would find valuable and would make their team successful. A technology that can gather this new team data and display it in a way that is easy to understand and customizable, would prove to be a valuable addition to their technological roster that even intuition cannot beat.

### **CHALLENGES IN DATA TECHNOLOGY**

- ▶ More data than teams are capable of analyzing effectively.
- ▶ Coaches currently value intuition and experience over analytics when it comes to decision-making.
- ▶ The technology to gather further data capable of predicting player movements is still in its infancy.
- ▶ There is a level of difficulty in determining how to utilize the surplus of information that player tracking data technology provides to help players and coaches gain an advantage.

## **PERSONA**

Coach Jack Segel is 49 years of age, and has been an NBA coach for 15 years. Prior to the start of the season his team acquired new players, so he is still trying to become familiar with their strengths, in the context of the team as a whole and their abilities to work with other teammates. He is hesitant to rely on new technology because his teams have been fairly successful in the past without the increased use of analytics to make decisions. If he did utilize new technology, he would like access to more useful data at game time, data that is clear, easy to interact with, and customizable.



(See Appendix A for the full Problem Justification Document)



## **RESEARCH QUESTION**

*How might...* teams gather statistical data on player-to-player interactions, player performance, and player health, in real time, to help coaches make better decisions throughout a game and in future games?



# **LANDSCAPE ANALYSIS of CURRENT SOLUTIONS**

**Experience Concept ▶ Functionality ▶ Visual Design**



## CURRENT DATA TECHNOLOGY

Before beginning any design process, it was important to analyze the current data gathering technology (both the device itself and the connected applications) that existed for the sports market. The technology evaluated was not only for basketball. Technology for other sports was also evaluated, in order to get a full picture of the technology that existed throughout the sports world. The technology was evaluated based on the experience of using the device and application, their functionality, and their visual design. These three factors shaped the design of my own device and application.

Overall, much of the applications evaluated struggled in terms of visual design. Some of the applications had a lot of information on one page, with little hierarchy or context in order to connect all the different forms of information. Some of the devices evaluated were bulky, and easy to displace or damage. These mistakes greatly informed my own design.

The applications that were successful used a consistent color palette, and appropriate colors based on the data that was being displayed. There was enough data on the screen to be useful, but not too much that it was overwhelming. Data displayed on the application was gathered in real-time, making it easier for users to make more immediate changes. Successful applications not only had these traits, but utilized a less obtrusive device, such as a small sensor or camera in the sports arena, to gather data.

## TECHNOLOGY USED IN THE NBA

One of the most prominent ways in which data is currently gathered by all NBA teams is STATS SportVU basketball player tracking. STATS SportVU has had a partnership with the NBA for the past few years. This form of tracking uses “a six-camera system installed in basketball arenas to track the real-time positions of players and the ball 25 times per second” (“Basketball Analytics | Basketball Player Tracking”). This use of data tracking provides data based on distance, speed, player separation (within that team, not between players of other teams), and ball possession. STATS boasts “the fastest, most reliable sports data feeds on the market” (“Live Sports Feeds, Custom Sports Data Feeds, Sports Data API”). These data feeds can be purchased based on the individual features a team wishes to have access to, such as how frequently they want game updates to be available, and the types of data they want available, such as standings, rosters, depth charts, and player leaders. Teams can also purchase data feed packages, with each package providing different features. This data can be viewed on any digital device, and is displayed in both chart form and as court diagram visuals. “It is a technology, however, that has been created without any specific need. Ideally, SportsVU will find new trends and new ways to measure the game that enhance our knowledge – both for teams to help better their product, and for fans to have an increased understanding of the game” (Safir).

**(See Appendix B for the full Landscape Analysis)**



# OVERALL DESIGN CRITERIA

After a thorough investigation of the competitive landscape, I have determined that my solution must include the following criteria:

## Experience Concept

*Conceptually, my solution will..*

- E1** Provide a more complete performance assessment in order to make more informed decisions
- E2** Make the data displayed within the app easy to understand and more contextual
- E3** Empower coaches to trust in the validity of the data in the application in order to make quick decisions
- E4** Minimize stress of accessing so much information by utilizing page tabs, rather than having to go back to a main menu page
- E5** Not overwhelm or confuse the user with too much information at one time
- E6** Motivate coaches to use the app during in-game and post-game play

## Functionality

*Functionally, my solution will enable Jack to...*

- F1** View biometric info so as to indicate how health could be affecting performance of players
- F2** Gather information on physical interactions between players of opposing teams, to help indicate how certain players impact performance
- F3** Compare one player against an opposing player in certain areas of play based on previous performances
- F4** View most successful lineups based on previous performances
- F5** Filter previous plays by game, quarter, and side of the ball, and examine how a play could have been performed more successfully
- F6** View social media posts pertaining to the team and its players

## Visual design

*The design of my solution will...*

- V1** Utilize an unobtrusive physical device
- V2** Showcase sans serif fonts that evoke an athletic feel
- V3** Highlight the color palettes of the teams showcased, with more simple, neutral branding usage
- V4** Visually convey and connect sets of data by placing them in close proximity to one another or placing the data within the same chart



Game

# PROTOTYPING PROCESS

% OVERVIEW

% BY # OF PASSES

5%

FG %

75%

3PT %

## PROTOTYPING & USER TESTING

After assessing the current data gathering technology, including their respective strengths and weaknesses, I began prototyping and testing my own solutions. Throughout this process, I took into consideration those strengths and weaknesses I had previously researched. I went through three rounds of prototyping and testing. I tested users with knowledge of what coaches would want to see, and with knowledge in regards to basketball analytics. I also received feedback from my professor when it came to the design of the application itself.

### USERS TESTED

#### M. David Lovell

Sport Marketing Instructor,  
NCAA Associate Director of Branding & Fan Experience

#### Andrew McClatchey

IUPUI Basketball Analyst & Advance Scouting

#### Professor Aaron Ganci

Professor of Visual Communication Design

#### Pat Boylan

Host & Sideline Reporter for the Pacers Radio Network,  
contributor to the Pacers telecasts on Fox Sports Indiana

### ROUND 1: LOW FIDELITY

The first round of prototypes were low fidelity sketches. I presented them to **David Lovell**, and asked him three important questions about how the application

would work as a whole. I asked him what form the sensor technology used to gather the data should take, the best ways to display all the different types of data visually, and if including social media information would be helpful for a coach. I learned that the sensor would be best in an area that is secure and unobtrusive. I also discovered that the way the data is displayed shouldn't be completely foreign to the user and too much data should not be displayed at once. And finally, I learned that the use of social media could potentially be helpful, but not when it comes to the decision-making of coaches.

### ROUND 2: MEDIUM FIDELITY

After considering the user feedback and making changes accordingly, I received feedback on my medium fidelity digital designs from **Andrew McClatchey** and **Aaron Ganci**. Mr. McClatchey provided insightful feedback on what kind of statistics coaches would want to see on each of the individual pages I had designed. Mr. Ganci provided feedback on the way in which I was displaying that data, as well as page layout and the branding of my application.

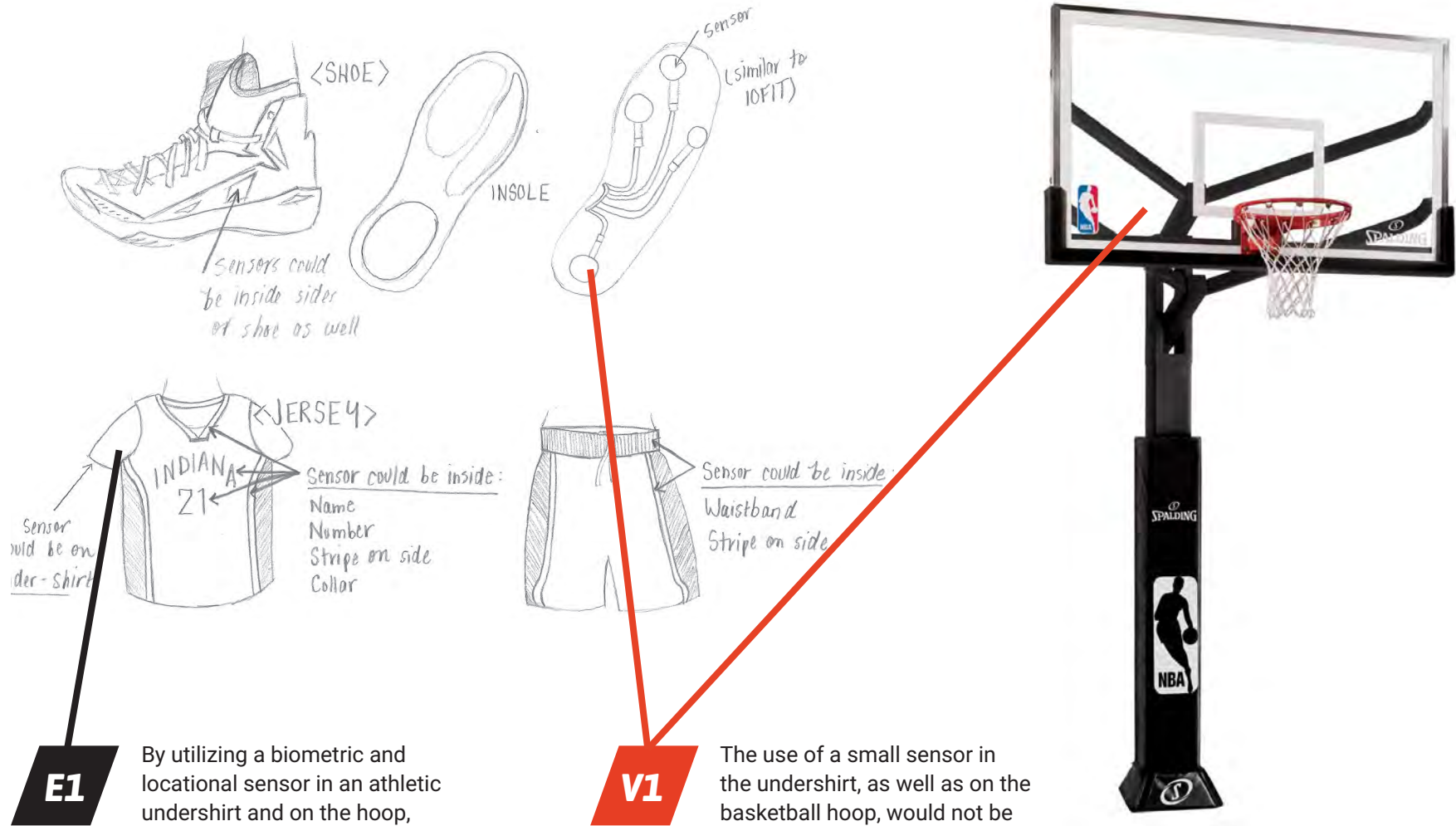
### ROUND 3: HIGH FIDELITY

I tested higher fidelity designs with **Pat Boylan**. He also provided good feedback on what stats coaches would find valuable. He provided a different perspective on how to convey info as a storyteller.

(See Appendix C for the full Prototyping Process Document)

The background is a dark grey color with a repeating watermark of the letter 'U' in a lighter shade. There are two large, thick red arrows: one on the left pointing up and to the right, and one on the right pointing down and to the left.

# ***FINAL SOLUTION***



By utilizing a biometric and locational sensor in an athletic undershirt and on the hoop, teams are able to capture a more complete picture of not only the movements of the players, but also their heart rate, distance, and speed.

The use of a small sensor in the undershirt, as well as on the basketball hoop, would not be large or obtrusive for the users.

# ASSESSING THE TEAM AS A WHOLE



E4

The use of tabs along the top allows the coach to easily move between the various categories of information he wants to view, rather than having to continuously use the back arrow to view previous information.

V4

Coaches can get an overview of the team's various percentages, but he is also able to toggle to see the percentage based on the number of passes before the shot in close proximity, making it easily to quickly see both sets of information.

F6

Coaches can choose the media, team, and player, social media accounts they would like to follow in order to have a clear picture of the information and mentality surrounding the team.

# ASSESSING PLAYER PERFORMANCE



V2

The use of the typeface *Geogrotesque*, a font commonly used in sport graphics, evokes an athletic feel within the application.

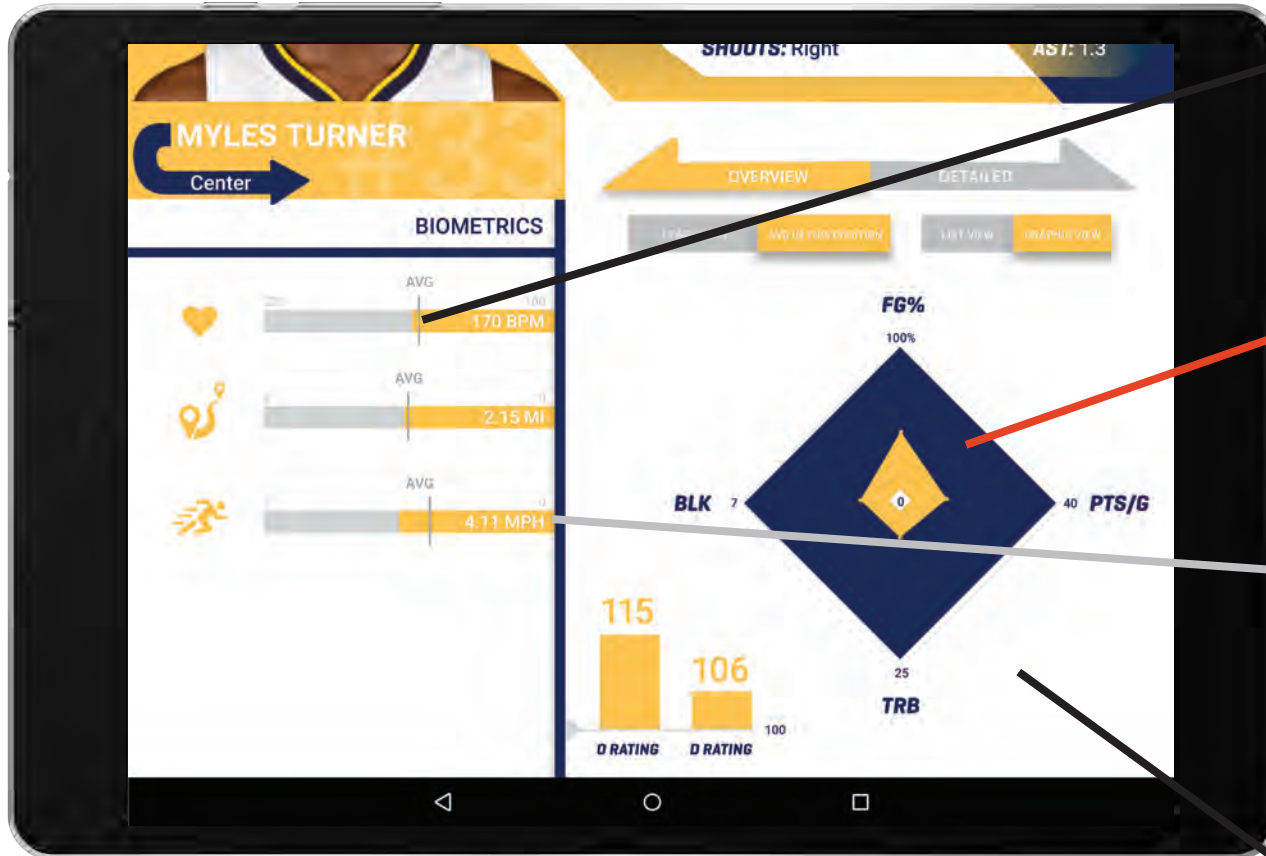
V3

Being that the team highlighted in my example is the Indiana Pacers, the team's color palette of blue, gold, and gray is showcased, making it more personalized to the team using it.

The color palette of the app itself takes more of a backseat, while the colors of the team become the focal point.

# ASSESSING PLAYER PERFORMANCE

CONTINUED...



E2

Coaches have the ability to compare a player's biometric information to the league average or the average in that player's position, providing more context than simply the numbers.

V4

FG%, points per game, total rebounds, and blocks, are all stats that coaches would find valuable in relation to a center, and they can all be found in one chart.

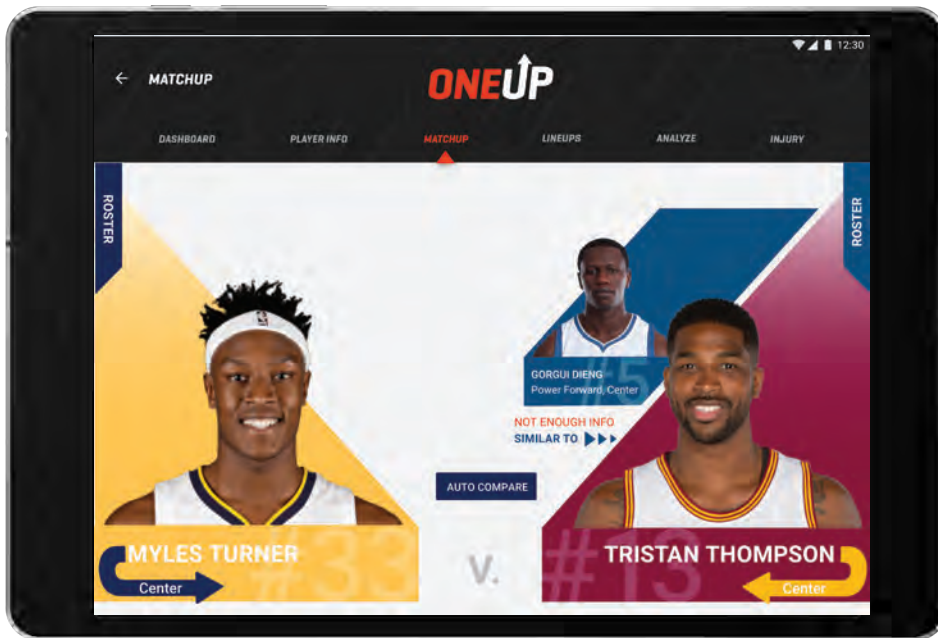
F1

Coaches can view the biometric information gathered by the sensor, including heart rate, distance, and speed, in order to get a clear picture of how they stack up against the average, as well as how those numbers may affect their performance.

E5

This page, like the "MATCHUP" page, contains simply overview information, so as not to overwhelm or confuse the user with too much content at once.

# COMPARING OPPOSING PLAYERS



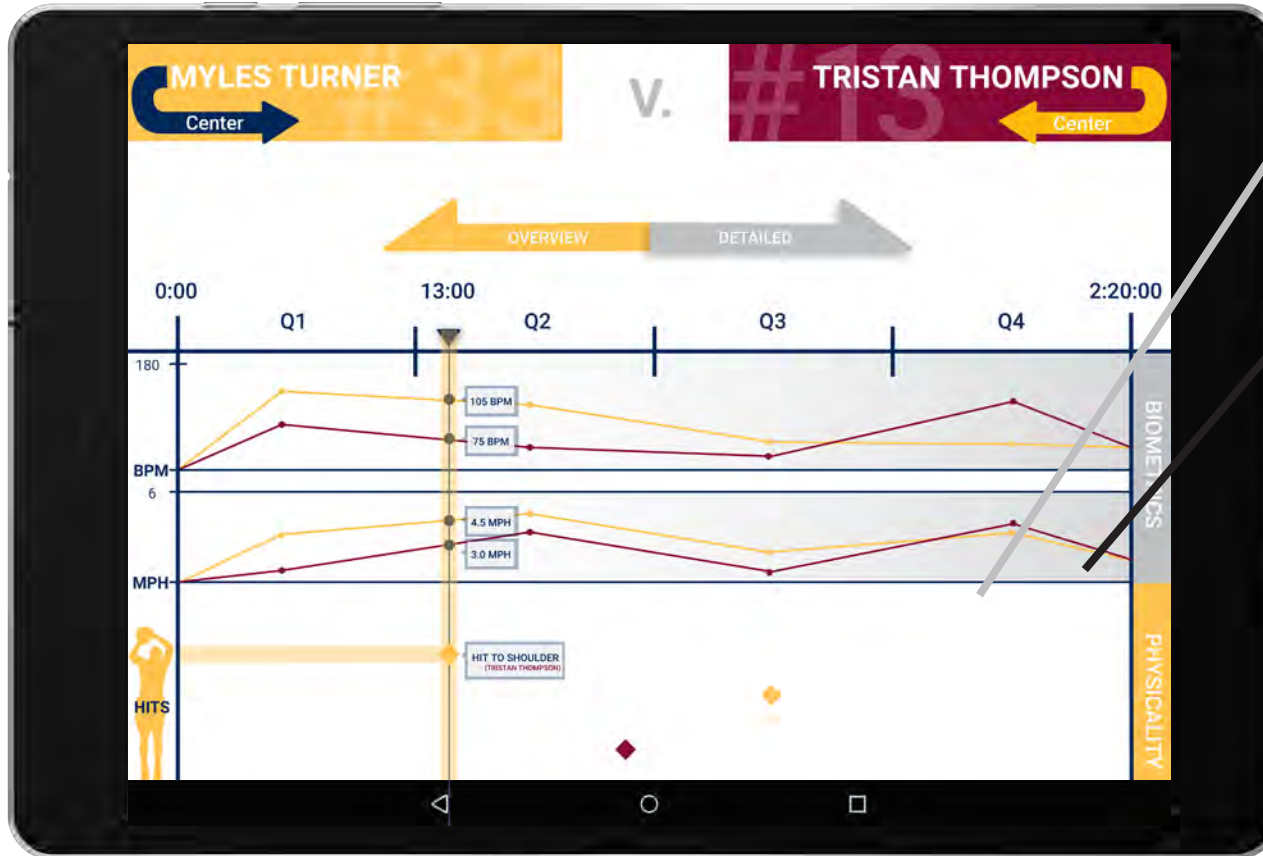
F1

On this page, a coach can compare the biometric information of opposing players in order to see how they stack up.



# COMPARING OPPOSING PLAYERS

CONTINUED...



F3

This chart allows a coach to compare the biometric information and statistics of two players throughout a game, or post-game.

E6

By being able to see exactly what's taking place in a game in real-time, including valuable information such as how biometrics or interactions with other players may be affecting performance, coaches will be motivated to use the application knowing it's providing unique information that they can interpret and get a leg-up on the competition.

# COMPARING OPPOSING PLAYERS

CONTINUED...



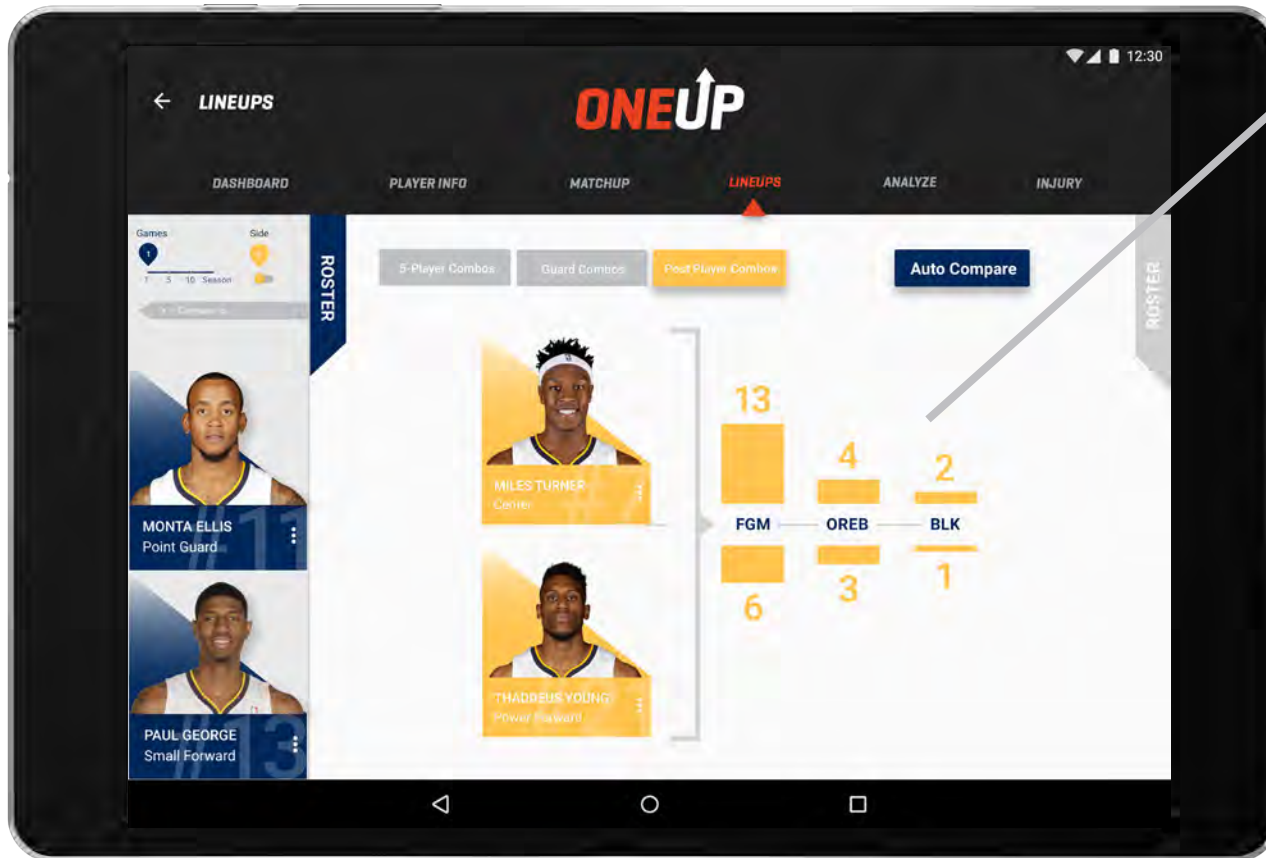
F2

Via the “PHYSICALITY” section of the chart, coaches are able to view all physical touches or hits to the body, and which part of the body was hit, so they are able to easily evaluate that information in relation to their performance.

E3

Coaches can trust in the validity of this data because everything that’s happening in real-time, right before their eyes, is being analyzed and displayed on screen in real-time. By empowering users to trust in this, they are able to look at a chart such as this one (one with a multitude of information that relates to one another) and make quick decisions based on all they can see in one screen.

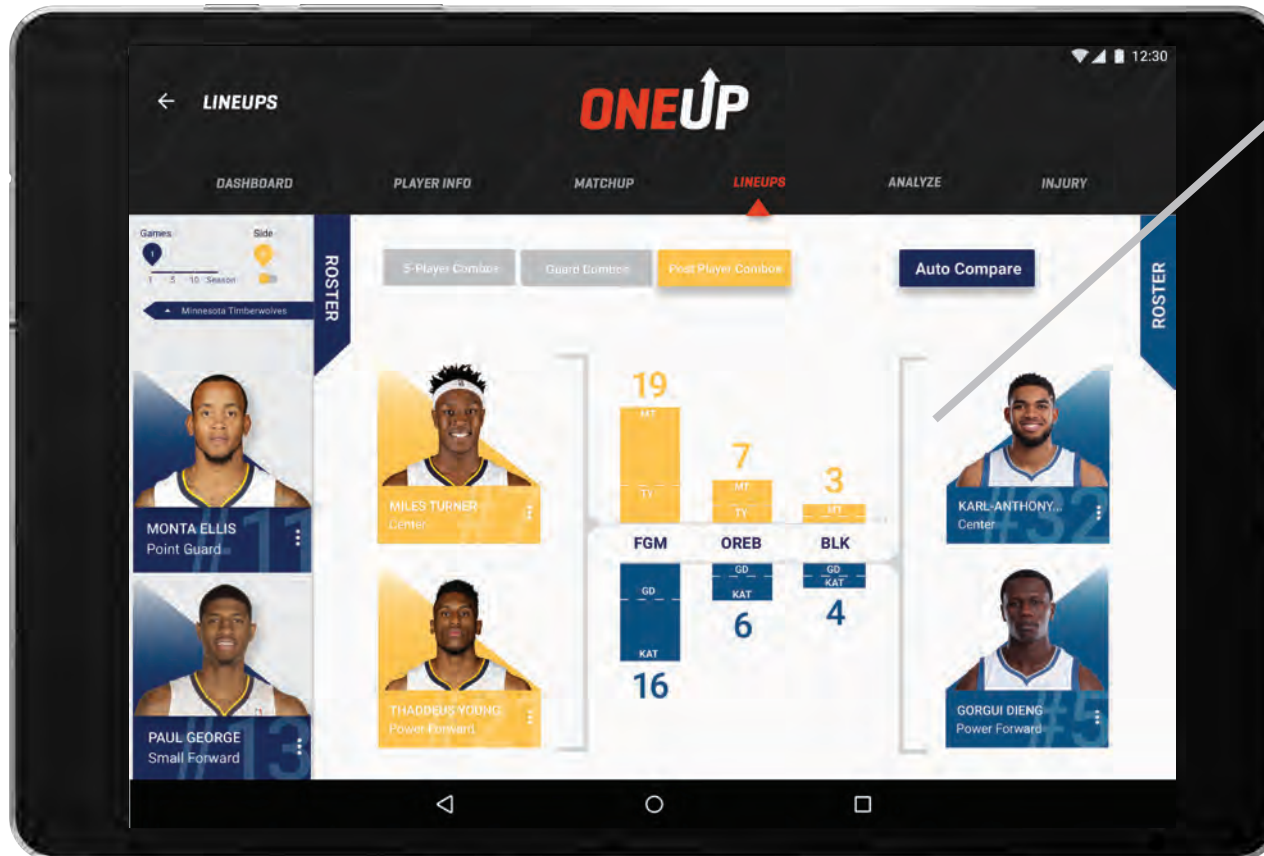
# ANALYZE PLAYER COMBINATIONS



F4

Most successful lineup combinations are displayed based on previous performances. Coaches can view 5-player combos, guard combos, and post player combos.

# COMPARE VARIOUS PLAYER COMBOS



F4

View successful lineup combinations on your team, and compare those combos against another team.

# EXAMINE & ANALYZE PLAYS



F5

Filter previous plays by game, quarter, and side of the ball in order to quickly and easily see only the plays you want to see.

Successful defensive plays are noted so coaches can quickly see what successful maneuvers could be used in future plays.

Use the "IDEAL ON" feature in order to predict how unsuccessful plays should have been run (including player positioning based on opposing players on the floor) to be successful.



**APPENDIX A**

**PROBLEM  
JUSTIFICATION**

**RESEARCH JUSTIFICATION DOCUMENT**

# ***HOW DATA TECHNOLOGY CAN CHANGE THE GAME***



## **INTRODUCTION**

Many industries today are attempting more systematic methods when it comes to decision-making. “However, no other industry has the same types of analytical initiatives underway as the domain of professional sports” (Davenport). Unfortunately, “even when considerable data and analytics are available to support key decisions, the [owners, managers, coaches] may not employ them over their intuition and experience” (Davenport). Considering this information, it is important for teams to take advantage of advancements in data gathering technology which would provide more predictive and prescriptive data, information that team staff would find valuable and would make their team successful. A technology that can gather this new team data and display it in a way that is easy to understand and customizable, would prove to be a valuable addition to their technological roster that even intuition cannot beat.



## THE CHALLENGES IN DATA TECHNOLOGY

The progression of player tracking data and analytics has improved the ability to assess and compare player performance. However, with the increase in data, and ability for future technology to only increase the amount of data we are capable of collecting, there comes challenges that have yet to be fully addressed. Currently, there is more data than teams can analyze effectively. “In the soccer leagues that have adopted GPS devices, for example, the teams will undoubtedly have far more data than they know what to do with at first. There will also be overlaps between types of data; for example, it’s possible to know how many yards, feet, or meters a player has run during a game from either GPS devices or video cameras” (Davenport). The San Antonio Spurs have also used GPS devices in practices, so as the NBA adopts further technology, they will face similar challenges. Despite all the growing data available to NBA teams, the level of importance of that as it contributes to decision-making of coaches is still low as compared to a coach’s “intuition and experience” (Davenport). While still considered frontier technology, the ability to gather more predictive or prescriptive player data has the ability to capture the attention of coaches and athletic trainers alike. Although GPS devices are beginning to gather this kind of data, by collecting length and level of player activity as it relates to player health, the technology to gather additional data, capable of predicting player movements and visualizing those predictions, is still new.

There are a number of challenges when it comes to data gathering and analysis, and the current data that is collected and the ability for teams to effectively analyze data is specifically problematic. “Video analytics in basketball, for example, keep track of descriptive analytics such as ball touches, rebounds (contested and uncontested) and so forth. This is useful analysis, but more complex analytics (how often does a particular player go to the left when driving toward the basket from the free throw line) require human analyst work” (Davenport). Given the large amount of NBA video footage recorded by devices like those implemented by STATS SportVU in 2013 (described in “Current Solutions”), it is difficult to gather all the statistics possible. With these player tracking devices, “there is a level of difficulty in determining how to utilize the surplus of information that it provides to help players and coaches gain an advantage. With so many criteria to choose from, what should an evaluation be based on in the first place” (Steinberg)? The information that is easy to gather, like ball touches, rebounds, and player leaders, is all fairly observable, on-the-court data. If data like this, and similar data, is what is being gathered, it is not surprising that coaches may not find it valuable. There is more significant data that could be tracked, which could assess player performance, or potentially help indicate future performance. This could include player interactions, or data regarding external factors, such as social media posts and interactions.

## THE DEFINED USER

As we continue to gain a better understanding of the problem space and what the most appropriate solution may be, we must also consider the people at the center of this problem. In this case, NBA coaches are at the forefront. The average age of NBA coaches is just under 50 years old. Taking into consideration the older average age of coaches and the growth of data gathering technology at this stage of their careers, coaches are facing an important transition period. They are challenged with facing the previous ways in which they made coaching decisions, and challenged with considering the incorporation of a new, more analytical way of thinking. Many coaches challenge the use of technology that has the ability to monitor a player's fitness. For example, it was revealed that dismissed Chicago Bulls head coach Tom Thibodeau may have disapproved of this technology. "He was basically challenging it, like, 'Michael Jordan didn't need that'" (Chant). Since coaches know of a time when players and teams were successful without the use of more analytical approaches, they will need incentive to adopt new technology. "A lot of people look at technology as a threat," McCoy added. "Those who are good will use it as an opportunity to get better" (Bleacher Report).

## MEET COACH JACK SEGEL

Coach Jack Segel is 49 years of age, and has been an NBA coach for 15 years. Prior to the start of the season his team acquired new players, so he is still trying to become familiar with their strengths, in the context of the team as a whole and their abilities to work with other teammates. He is hesitant to rely on new technology because his teams have been fairly successful in the past without the increased use of analytics to make decisions. If he did utilize new technology, he would like access to more useful data at game time, data that is clear, easy to interact with, and customizable.



## THE CURRENT SOLUTION

One of the most prominent ways in which data is currently gathered by all NBA teams is STATS SportVU basketball player tracking. STATS SportVU has had a partnership with the NBA for the past few years. This form of tracking uses “a six-camera system installed in basketball arenas to track the real-time positions of players and the ball 25 times per second” (“Basketball Analytics | Basketball Player Tracking”). This use of data tracking provides data based on distance, speed, player separation (within that team, not between players of other teams), and ball possession. STATS boasts “the fastest, most reliable sports data feeds on the market” (“Live Sports Feeds, Custom Sports Data Feeds, Sports Data API”). These data feeds can be purchased based on the individual features a team wishes to have access to, such as how frequently they want game updates to be available, and the types of data they want available, such as standings, rosters, depth charts, and player leaders. Teams can also purchase data feed packages, with each package providing different features. This data can be viewed on any digital device, and is displayed in both chart form and as court diagram visuals. “It is a technology, however, that has been created without any specific need. Ideally, SportsVU will find new trends and new ways to measure the game that enhance our knowledge – both for teams to help better their product, and for fans to have an increased understanding of the game” (Safir).

## THE POTENTIAL FOR INNOVATION

Though many leagues are taking advantage of advances in data gathering and analytics, the one that seems to take advantage most in terms of frontier data technology is Major League Baseball. Taking into consideration that baseball is more individually focused and “optimal lineup analysis and player interaction analytics are not widely used”, it is not the ideal sport to look to for comparisons (Davenport).

While some question the significance of the shift from “the organic, gut-instinct impression that came simply from watching a game unfold” to a more analytic approach, “there are still coaches and legends of the sport who reject the practice of analytics and are leery of how number-crunching will fundamentally change the sport” (Ross). Despite the side on which they lean, there is no doubt that the growth of data gathering technology has had an impact on the sports industry. “While the movement to employ more sophisticated metrics has been in motion for some time, the turning point could perhaps be pegged as 2013—the year the NBA installed player-tracking systems in all 29 of its arenas” (Ross). The turning point was the STATS SportVU system. This was an important moment for the league and for its players because suddenly “every micro-movement on the court could now be tracked, quantified, and eventually archived. No longer could a player ‘hide’ his deficiencies on the court” (Ross). As the true strengths and weaknesses of players have become identified through player tracking technology, there has been a “re-imagining of what matters in basketball and thus, a shift in the paradigm of player evaluation...No longer is it about raw totals as much as it’s about weighing the impact of each action. This has in turn affected how teams score” (Ross).

## **THE POTENTIAL FOR INNOVATION, CONTINUED**

While technological strides have been made that easily assess total activity, which can potentially be helpful in assessing player health, the ability to gather data on player-to-player interaction and how it effects player performance is in its infancy. By collecting data on the interactions between players on opposing teams during play, including distance between opposing players, level of physical contact, or how frequently a player comes into contact with another particular player, teams are able to collect information on how distance or contact effects their performance, and how that contact may effect player health.

The technologies closest to potentially gathering data such as this are locational and biometric devices. “These include GPS devices, radio frequency devices, accelerometers, and other types of biometric sensors” (Davenport). These devices are still new in terms of the data they have the capability to collect and are “most frequently used to assess total activity (miles or kilometers run, steps taken, average speed) undertaken by players in a game or practice...It’s also possible to use this type of data to understand interactions between players, but this will require greater sophistication in data analysis” (Davenport). While it can certainly be helpful to use these devices to evaluate total activity of a player in relation overall health, that is fairly common now in sports. By manipulating these locational and biometric devices, or creating

new technology that has roots in previous technologies, teams could be capable of much more. This might be especially true when combined with a user-friendly and customizable application. They could gather and display data not only on interactions between players, and how that affects their health and overall performance, but have the potential to predict how certain players would react in contact with other players, or even predict injury. By incorporating wild-card-like data, such as social media posts and interactions, a player’s social and/or mental states outside of play could even be evaluated and considered in connection to player performance. “Teams that adopt data-generating technology early in the cycle can quickly develop analytical capabilities relative to it, and can maintain advantage even when it is adopted by other teams” (Davenport).



## **THE HYPOTHESIS & CONCLUSION**

Based on information regarding the current conditions in sports data and analytics, as well as the needs of the defined user, I have developed a hypothesis most appropriate in framing the way to tackle the solution. *The design of a new system to gather player data will help provide more useful predictive and prescriptive information, which coaches can easily use and customize in real time.* I will test my hypothesis by iteratively prototyping any digital technology, as well as conducting think-aloud user testing, in which a user vocalizes their interactions with the design and how effective that design is throughout their experience. I have the potential to test with my Sports Marketing professor, David Lovell, as well as Sports Marketing students (both undergraduate and graduate). By solving this problem, Coach Jack Segel will improve his ability to predict player performance, and ultimately improve the chances of being a successful franchise overall.

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**APPENDIX B**

**LANDSCAPE ANALYSIS**



**LANDSCAPE ANALYSIS**

# **ASSESSMENT OF CURRENT TECHNOLOGY**





# EXAMPLE ONE: **STATS SportVU ICE**

## **Location**

<https://www.stats.com/basketball/>

## **Overview + Relevance to this project**

SportVU is the official player tracking partner of the NBA. This tracking technology uses six cameras installed in various positions throughout an arena to track real-time positions of players and the ball, 25 times per second. The technology provides data based on distance, speed, player separation, and ball possession. The data this technology provides can either be purchased in packages, each package providing certain features, or as individual features. The data appears to be typically be shown in chart form or as court diagram visuals.

## **Experience Concept**

**Good:** User interacts mostly with the software and not the cameras themselves, no wearable required to gather data, STATS analyst staff serves as extension of team staff to help with report creation and gathering helpful insights

**Bad:** Information is displayed in a standard charts and graphs format, not engaging to look at, by displaying so much info on one page it may be difficult for a user to fully understand how it all relates

## **Functionality**

**Good:** Advanced recognition software guarantees a user is getting the correct information on the correct player, can access, manage, and analyze data, user can playback video from a game for analysis, can measure average distance run, average speed, and acceleration to assess strain on the body,

**Bad:** Some of the data provided is data you could gather just by watching with your own eyes or watching back on your own video recording

## **Visual Design**

**Good:** Simple design, information is displayed in a modular way, color palette is consistent

**Bad:** Hierarchy is a bit unclear at times (especially on pages with heavy text and chart data), while color palette is consistent, it's unappealing, information is displayed in an unexciting way

## Example One: **STATS SportVU**



Six cameras installed in all NBA arenas, tracking the positions of players in real time

## Example One: STATS SportVU



Provides video of a specific player at certain points in the game

Too much varying information with little hierarchy

Information is displayed in modular chunks, which makes info slightly easier to take in

These visuals displaying where the most shots are taken by a specific player are the most interesting visuals this interface utilizes



# EXAMPLE TWO: **WILSON X**

## **Location**

<http://www.wilson.com/en-us/explore/basketball/wx>

## **Overview + Relevance to this project**

WILSON X is a basketball and app combo that tracks makes and misses of the ball. This technology can track your field goal accuracy, range, and help train you to shoot at game speed. The ball and app have four different game modes, including free range, free throw, buzzer beater, and game time. These different modes train the user in various aspects of the game, collecting data on the amount of shots made versus number of attempts. The technology can track you at any indoor or outdoor regulation 10-foot hoop with net, the ball connects wirelessly to the app through bluetooth, and provides real-time audio (game noise, clock countdowns, horns).

## **Experience Concept**

**Good:** Can cover various aspects of a player's game with different training modes for a well rounded experience, simulates game time situations using crowd noise and clock countdowns and horns, can shoot indoors or outdoors

**Bad:** Have to make sure you're using a regulation hoop with net (which some people could potentially not have or have access to), if a user has to continue to go back to their phone to start, stop, or restart a timer, it can hinder the flow of play

## **Functionality**

**Good:** Different game modes allow the user to focus on different aspects of their game and in different game time situations, don't need to charge the ball, no cords are necessary since the ball connects wirelessly to the app, can shoot indoors or outdoors

**Bad:** Much of what this calculates you could calculate yourself by recording your own makes versus misses in a certain amount of time, then calculating your shooting percentage,

## **Visual Design**

**Good:** Visuals are clear and appealing to look at, little information on the screen at one time in the game modes, clear hierarchy, simple and consistent color palette, there is a consistent use of iconography

**Bad:** Using red text to convey shots isn't ideal considering red typically has a negative connotation

Example Two: WILSON X



Very little data on screen, in large type, makes content easy to read and understand

Color palette is consistent throughout

Could make it easier to identify the exact percentage at a specific amount of attempts by allowing the user to interact with the line graph

## Example Two: WILSON X



Shots made being displayed in red is not ideal since red gives a negative connotation

Clear hierarchy via size and color

Because shots made is in red text, they use red in charts to convey where shots were made on the court

Nice that they indicate percentage, and amount of shots made in that area

## Example Two: WILSON X



Nice that user can just slide through this data without have to keep going back to another menu

Consistent use of iconography, icons are also visually appealing



# EXAMPLE THREE: *ShotTracker TEAM*

## **Location**

<http://shottracker.com/team>

## **Overview + Relevance to this project**

ShotTracker technology captures data during practices and games in real time, provides instant feedback on how players are performing, and creates instant post-practice reports sent to coaches and players. With this technology permanent sensors are installed above the court, each player wears a sensor on their shoe, the players use the Spalding ShotTracker team ball, then real-time stats are sent to the appropriate smart device. ShotTracker TEAM can provide box scores, shot charts, optimal line-ups, possession stats, live action play, and practice reports to the team's or coach's smart device.

## **Experience Concept**

**Good:** Exciting to see player's movements live on screen, a bit easier to compare player stats with the use of easy to read charts as opposed to a simple list format, with the use of court charts to compare stats a little more context is provided to the coach, information is displayed on one page with multiple tabs making navigation easy, data not only helps coaches but the players

**Bad:** One would hope the practice reports aren't just sent to the coach's email, but can be viewed within the application as well

## **Functionality**

**Good:** Can see the movements of players on the court, now teams can get data in real time on screen, players can see reports on how they performed, full practice report is sent to the coach's email post practice

**Bad:** There seems to be a lot of components necessary for the technology to work (court sensors, sensor on shoe, and basketball), can provide optimal lineups but not a very predictive technology otherwise

## **Visual Design**

**Good:** Information is displayed in large and clear type, making info easy to read, clear color palette for their branding

**Bad:** The color palette used in the zone chart doesn't relate to the branding, should use more consistent headshots of the players in order to make them more easily identifiable, text heavy



### Example Three: ShotTracker TEAM



Should use more consistent headshots for the players

Use of visuals, rather than just text, adds a bit more context to the info

The color palette used in these charts is a bit random, and seems inconsistent with the branding

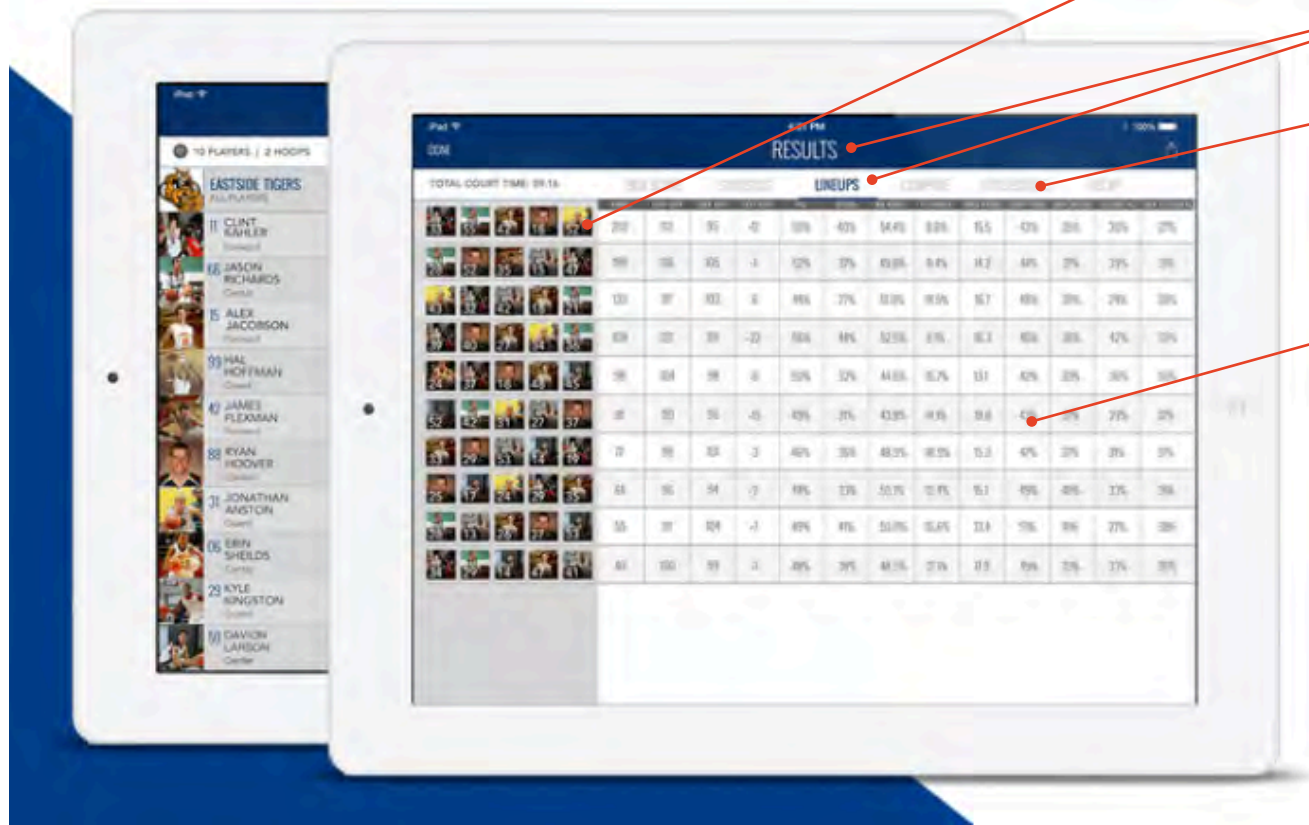
### Example Three: ShotTracker TEAM



Exciting to see the player's movements clearly displayed live on screen

Can clearly and easily see the stats of the players as they're playing in order to compare stats in the moment

### Example Three: ShotTracker TEAM



Would be easier if it had first name and last initial, rather than just their jersey number

Good type hierarchy

Has all information on one page with the use of multiple tabs, rather than having to go back to a separate menu

Information is very type heavy, not as appealing to look at



# EXAMPLE FOUR: **PLAYERTEK**

## **Location**

<http://shop.playertek.com>

## **Overview + Relevance to this project**

PLAYERTEK is a small wearable pod device with app companion. A player wears the pod on their back during a game or training, attaching it to a shirt provided by PLAYERTEK. The user can upload the session using the PLAYERTEK sync tool, then analyze and compare performance with other players. PLAYERTEK has a web app and an iPhone app.

## **Experience Concept**

**Good:** a view of your team's social media can be seen on the team dashboard (adding another new element of information), use of tags helps the user better filter their sessions and charts for a more in depth look at their stats, you can toggle between different types of information on one screen

**Bad:** the comfortability level of the harness that holds the device, and the device itself, may inhibit flexibility, a lot of information on one screen may be a bit overwhelming

## **Functionality**

**Good:** The charts and graphs used in the application are ones a user would recognize

**Bad:** By placing the device on your back there's always the risk of it falling out and being destroyed, there is some uncertainty in how some of the data is calculated

## **Visual Design**

**Good:** Clear color palette of orange, blue, gray, and black, data is displayed in a variety of ways which makes the information more visually appealing, information is separated in a way that makes sense

**Bad:** There is a lot of information on one screen, would be easier for the user to be able to click on one aspect of something on their dashboard which then directs them to even more specific information, iconography is simple and consistent, but not easily indicative of the information it represents

## Example Four: **PLAYERTEK**



The small device is placed inside the harness, which the user wears across his/her chest

The PLAYERTEK device



## Example Four: PLAYERTEK

Unsure of how this score is calculated, little connection between that number and other information

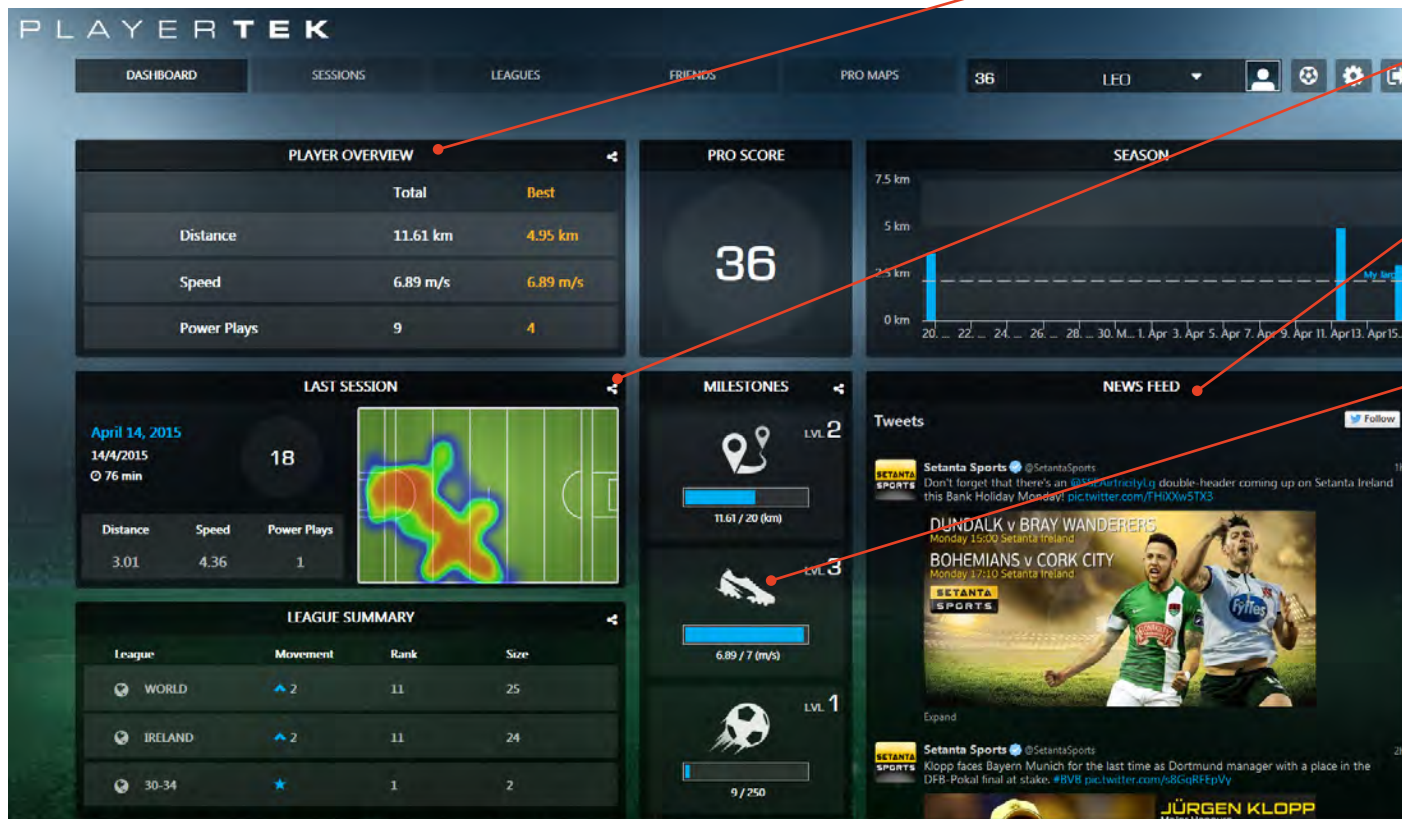
Interesting uses of different types of charts and graphs

A heat map should be something easily recognizable to the user

Clear type hierarchy to each section of information



## Example Four: PLAYERTEK



Can see an overview of the performance of a certain player

Information can be shared easily

The addition of a newsfeed allowing the user to view social media information is a unique and interesting addition

Icons are consistent, but not necessarily easily indicative of what they represent



# EXAMPLE FIVE: *HEDDOKO Smart Garment & App*

## **Location**

<http://www.heddoko.com/sports/>

## **Overview + Relevance to this project**

This garment and app combo collects full-body biomechanics data, models that data in 3D, and lets the user view it in real-time or save it for playback. With the application, coaches and trainers can analyze the movements of athletes, track metrics over time, work with athletes to improve their biomechanics, use the data to support rehab and get athletes playing their best faster, and analyze the risk of injury of athletes. The user wears the full body suit with attached sensors, pairs it with the application, the device captures and analyzes movement in 3D, then the user can make adjustments to reduce risk of injury.

## **Experience Concept**

**Good:** Movements are all easily transferred and displayed via the app in real time, rather than having to save the movements and view them on the app afterwards, can easily access most information on one screen rather than having to go back to another page

**Bad:** Sensors on garment are bulky so couldn't likely be used during an actual game

## **Functionality**

**Good:** Can easily see movements in 3D in real time or post exercise, able to assess how movements affect certain parts of the body by viewing the 3D model, have the ability to write and comment on exercises on screen and save what you've written, can compare movements of two different individuals, can more easily analyze risk of injury using this technology

**Bad:** Couldn't likely be used during real game play due to the body suit and bulky sensors, could only potentially be used during workouts which doesn't exactly mimic game play

## **Visual Design**

**Good:** Cool color palette, consistent use of cool colors, the 3D rendering is well done, all info displayed on the tablet and desktops versions

**Bad:** The device uses bulky sensors, application is commonly mocked up on iOS devices but appears to be designed more for Android devices



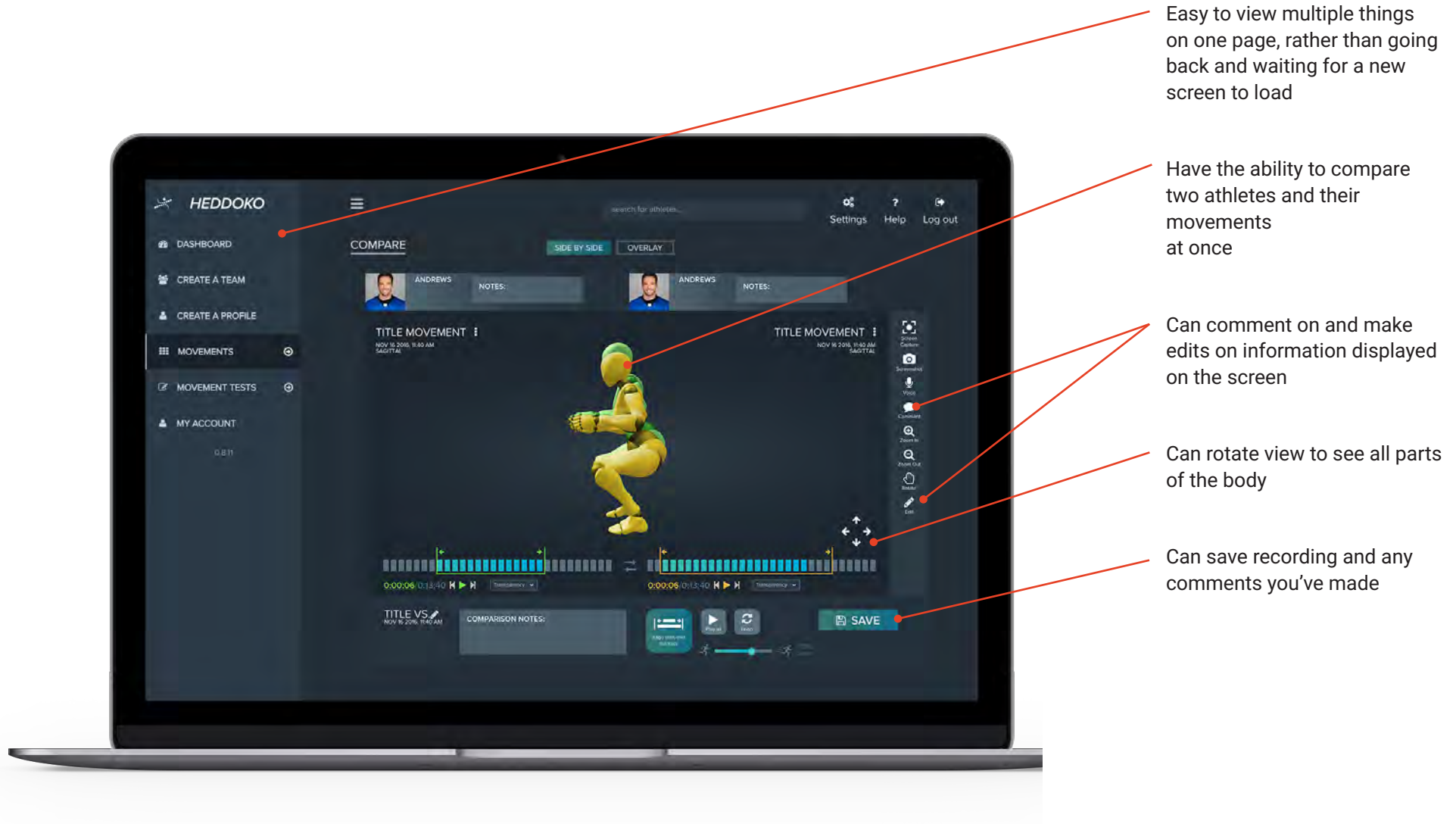
## Example Five: HEDDOKO Smart Garment & App



Sensors are quite large and bulky, so likely couldn't be used in game play

Suits cover the entire body so they wouldn't likely be worn in a game

## Example Five: HEDDOKO Smart Garment & App



Easy to view multiple things on one page, rather than going back and waiting for a new screen to load

Have the ability to compare two athletes and their movements at once

Can comment on and make edits on information displayed on the screen

Can rotate view to see all parts of the body

Can save recording and any comments you've made



# EXAMPLE SIX: *IOFIT Shoes*

## **Location**

<http://iofitshoes.com>

## **Overview + Relevance to this project**

These are considered to be the world's most advanced smart shoes. They are designed more with golfers and those who frequently work out in mind. They can analyze and improve the user's golf swing based on pressure placed on certain parts of the foot, providing real-time feedback. The shoes can integrate with a mobile application to offer advanced analysis of a user's golf swing, or of the way a user is lifting weights or squatting, in order to better improve form.

## **Experience Concept**

**Good:** Shoes are known to be fairly comfortable, sensors in shoe don't compromise the fit, shoe comes in a variety of styles, said to be very responsive to the movements of the foot

**Bad:** Information on certain pages of the app appears to be floating which makes it a bit hard for a user to draw connects between pieces of information, comparing swings between two users may be more challenging if the timing in the recordings isn't the same or similar, the application isn't very interactive, the app is more about feeding you information for you to interpret to improve your own game

## **Functionality**

**Good:** Records your swing to easily analyze, can see how much weight is put on what parts of the foot at certain points during a swing, can draw on your video, users have the ability to compare their swing to someone else's, can cut down footage to focus on a certain aspect of a user's technique

**Bad:** It seems mainly designed to be used by golfers (though they also want to target gym lovers), have to integrate application with your shoes yourself, may be difficult for older uses

## **Visual Design**

**Good:** Color palette is fairly consistent

**Bad:** While color palette is fairly consistent, two very different

## Example Six: IOFIT Shoes

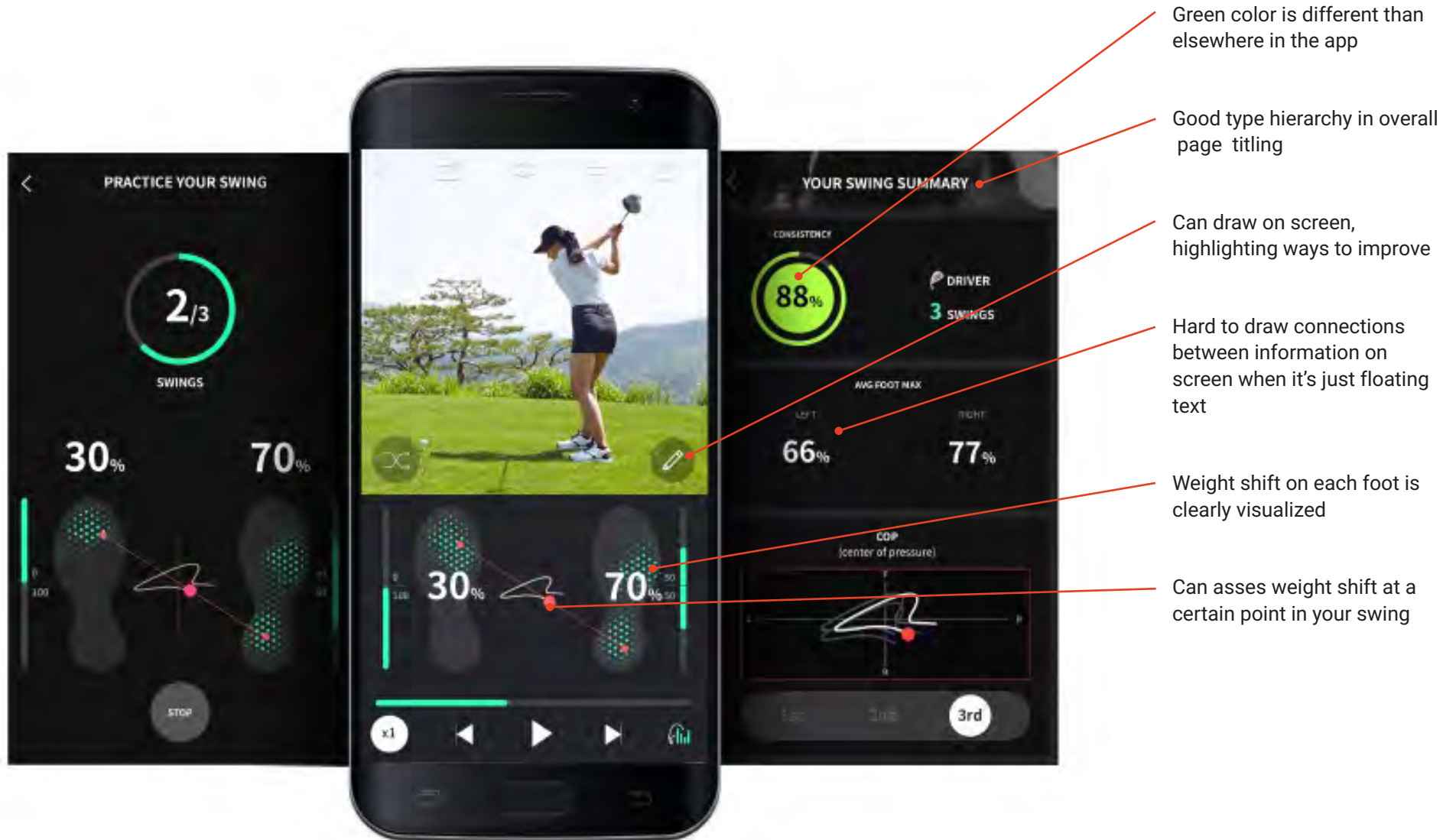


Early prototype of the sensors inside the shoe

Shoes come in many styles



## Example Six: IOFIT Shoes



## Example Six: IOFIT Shoes

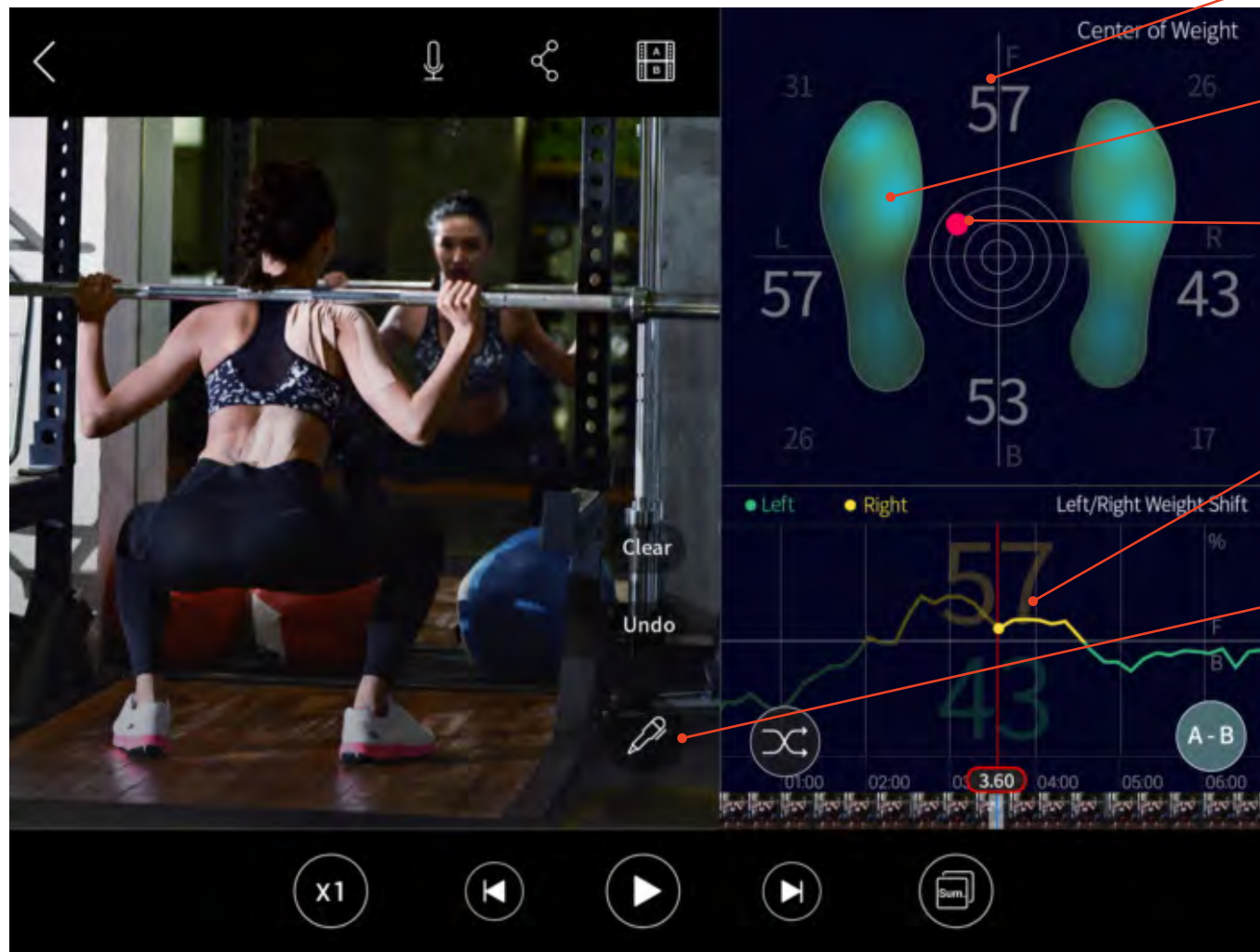


Can compare swing of two users

Can compare weight shift at certain point in a swing

Good type hierarchy, can clearly see percentages

## Example Six: IOFIT Shoes



Uncertain of what the correct numbers should be

A bit harder to get a sense of weight distribution as opposed to the visual for golfers

Red dot does help in getting a sense of where someone's center of weight lies

While it's easy to understand what the colors represent, the graph is a bit confusing to make sense of

Can make comments on the data you receive



# EXAMPLE SEVEN: *WHOOOP*

## **Location**

<http://whoop.com>

## **Overview + Relevance to this project**

WHOOOP is the first wearable product to automatically measure physiological markers to assess your readiness to perform each day. This device also calculates your exertion based on workouts and the user's daily lifestyle to make sure the user is training optimally. After assessing the exertion on the user's body, the device tells the user how much sleep they need in order to recover and calculates a breakdown of time spent in each wave of sleep.

## **Experience Concept**

**Good:** Tries to focus the user on recovery and sleep as an important factor in excelling in physical activity, wearable device does not hinder user's mobility, visuals are fairly simplified, making key information easy to read, can get a full view of your activity for that day

**Bad:** The daily strain numbers seem a bit arbitrary, a user may not be quite sure what they mean or how the number is calculated, the user has to input some information themselves, so there is some responsibility on the user's part before they can gather viable data

## **Functionality**

**Good:** A wrist wearable is very common and not obtrusive to the user, sends information to application on phone (app can be downloaded on the App Store), can see how much recovery time is needed based on the strain of that day,

**Bad:**

## **Visual Design**

**Good:** In terms of the website for the technology itself, it's the first I've seen to have a thorough persona of their user, consistent color palette of blue, green, and red

**Bad:** Iconography is a bit inconsistent with varying line weights



Example Seven: **WHOOP**



## Example Seven: WHOOP



Consistent use of circular visuals throughout

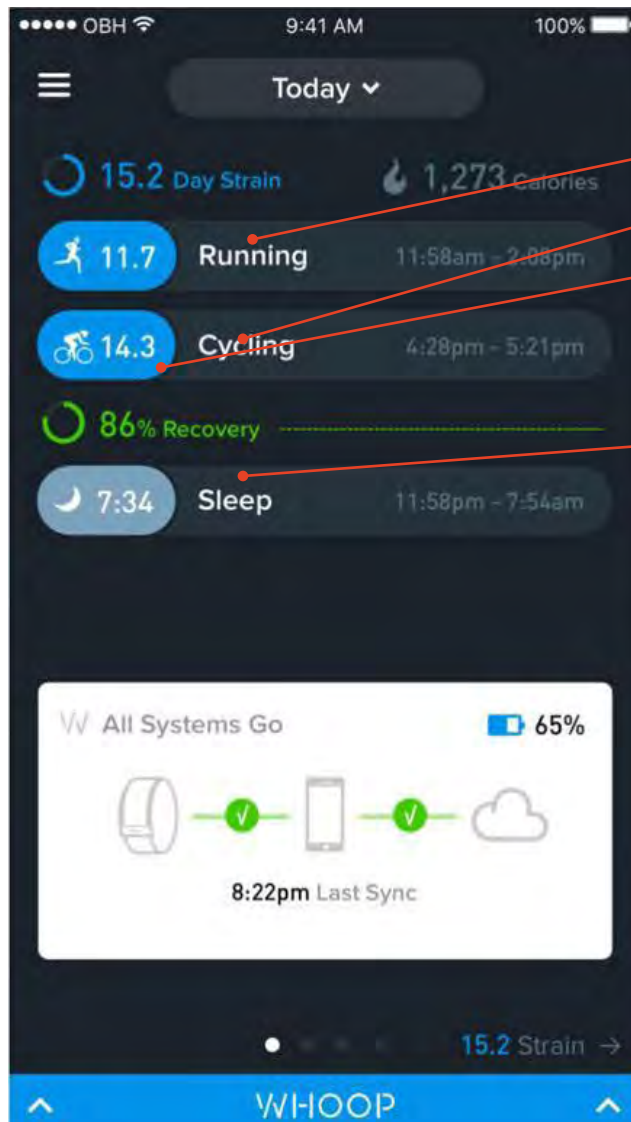
Consistent use of color as indicators of certain information ex. green=good, blue=activity, level of strain

Not too much info on the screen at once, can see all relevant info on that one activity on one screen

Good use of graphs that are easy to interpret, can make edits as well

Icons are somewhat inconsistent in terms of the line weight, and whether they are filled in or not filled in

## Example Seven: WHOOP



Clearly shows level of activity for that day

Visuals could better indicate length of time doing certain activity ex. the blue shape behind 14.3 could be longer to indicate a longer length of time

Indicates sleep needed based on level of strain that day



# EXAMPLE EIGHT: *Catapult OptimEye S5*

## **Location**

<http://www.catapultsports.com/system/outdoor/>

## **Overview + Relevance to this project**

The OptimEye S5 is the most used monitoring device in elite sport, with more than 900 teams using it to enhance performance and reduce risk of injury. This technology use advanced GPS technology for enhanced data accuracy and decreased satellite drop out. The microprocessor within the wearable device computes 1000 data points per second in real time for sport and position-specific info. The device features an algorithm that measures athlete movements. The software used by this device can conduct biomechanical analysis, such as measurement of impact forces for heavy impact sports. It can also display post-game analysis.

## **Experience Concept**

**Good:** Provides data in real time in order to make improvements right in the moment (when it might actually be very helpful)

**Bad:** Device and the harness could be uncomfortable for some players to wear, hindering their mobility, too many colors and little use of hierarchy can make the user overwhelmed and/or confused by the information in front of them

## **Functionality**

**Good:** Uses advanced technology to increase accuracy of data, microprocessor computes a large amount of data per second in real time

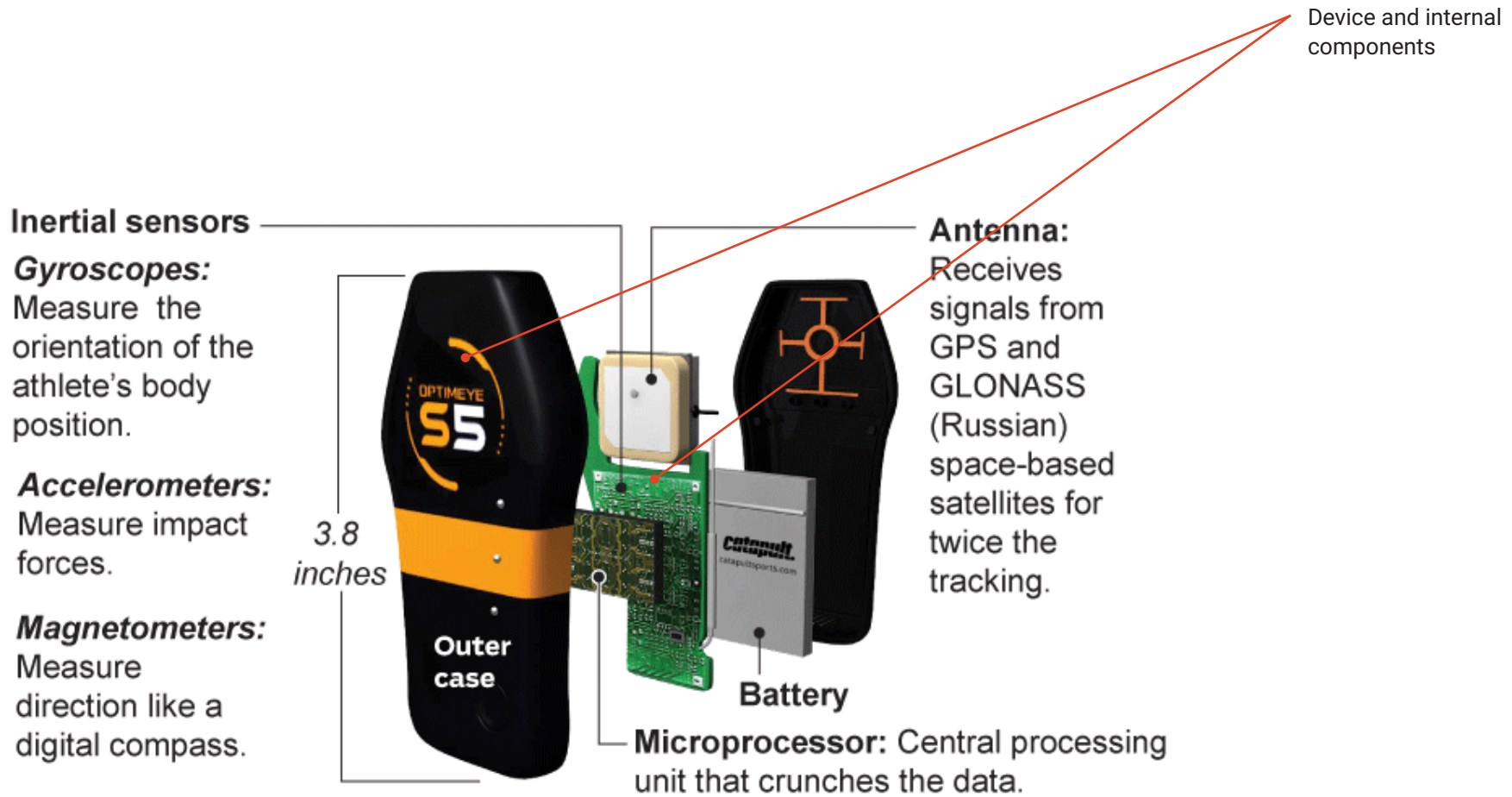
**Bad:** There is a potential issue with devices falling out of harnesses, device is slightly larger

## **Visual Design**

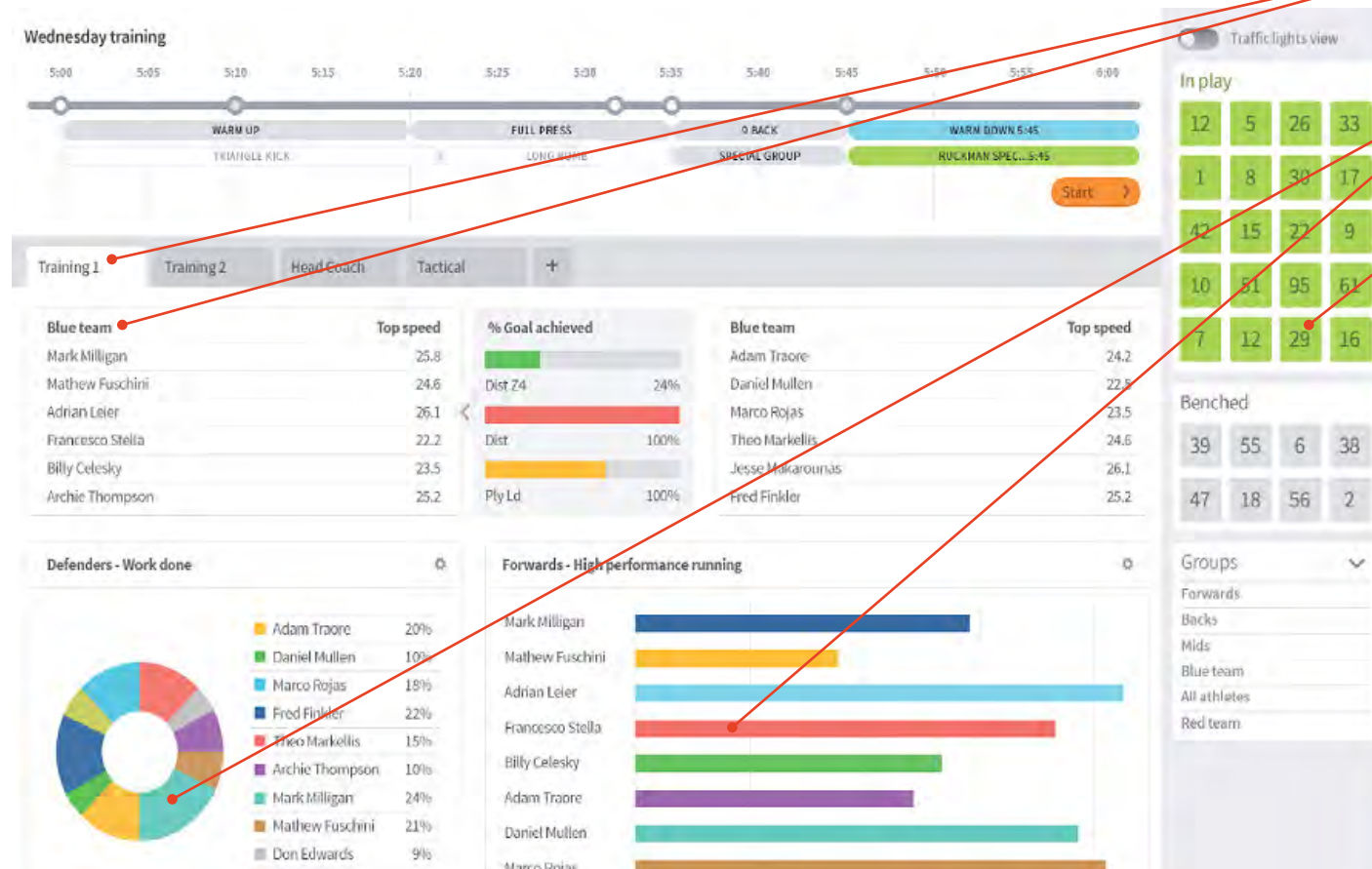
**Good:** Sans serif type looks clean

**Bad:** In general, doesn't focus enough on the way the data is presented or the application itself, a lot of bright colors used, no real meaning behind the use of color, little type hierarchy, use of multiple colors for the same player could be confusing for the user

Example Eight: **Catapult OptimEye S5**



## Example Eight: Catapult OptimEye S5



Little use of type hierarchy, if used, hierarchy is subtle

Too many colors used

Use of player numbers, without indication of player name, could make things difficult for a coach



# EXAMPLE NINE: *Catapult ClearSky T6*

## **Location**

<http://www.catapultsports.com/system/indoor/>

## **Overview + Relevance to this project**

The ClearSky T6 is a wearable device GPS device. The system uses stadium mounted or portable wireless base stations (rather than satellite reception) that are used to calculate the position of players. Between 12 to 15 of these base stations are required to cover a stadium/training area. This device can pinpoint player movement and conduct micro-movement analysis in order to measure performance. A user is also able to look at their performance in relation to the movements/performance of other teammates in order to improve team structure and strategy when in play.

## **Experience Concept**

**Good:** Provides data in real time in order to make improvements right in the moment (when it might actually be very helpful)

**Bad:** Device and the harness could be uncomfortable for some players to wear, hindering their mobility, too many colors and little use of hierarchy can make the user overwhelmed and/or confused by the information in front of them

## **Functionality**

**Good:** The ability to use portable, wireless base stations not only makes the use of these devices mobile, but helps them get better reception, can pinpoint player movement

**Bad:** There is a potential issue with devices falling out of harnesses, lots of base stations are required for the devices to work

## **Visual Design**

**Good:** Use of sans serif is clean, the use of gray helps break up the use of so much color

**Bad:** (this issues with this device are similar to those of the previous Catapult device) In general, doesn't focus enough on the way the data is presented or the application itself, a lot of bright colors used, no real meaning behind the use of color, little type hierarchy, use of multiple colors for the same player could be confusing for the user

## Example Nine: Catapult ClearSky T6



Sensors could easily fall out of pouch, and potentially be destroyed

Harness could be uncomfortable for players and affect mobility of the upper body

Catapult device







# EXAMPLE TEN: *Zebra Technologies RFID*

## **Location**

<https://www.zebra.com/us/en/nfl.html>

## **Overview + Relevance to this project**

RFID tags on uniforms track vital stats within 6". These player tracking tags capture high-speed player data and convert it into real-time, usable statistics. Based on those stats, coaches can use motion data to change their strategy. These stats are used greatly for live broadcasts and replay during a game, mostly in the NFL.

## **Experience Concept**

**Good:** The device isn't obtrusive or disruptive, since it is hidden in the shoulder pads

**Bad:**

## **Functionality**

**Good:** Algorithms collect players' stats and show them in real time, this technology can be applied to training or combined as well, making data easier to gather

**Bad:** Very much used as a locational tool, could have the potential to gather further data

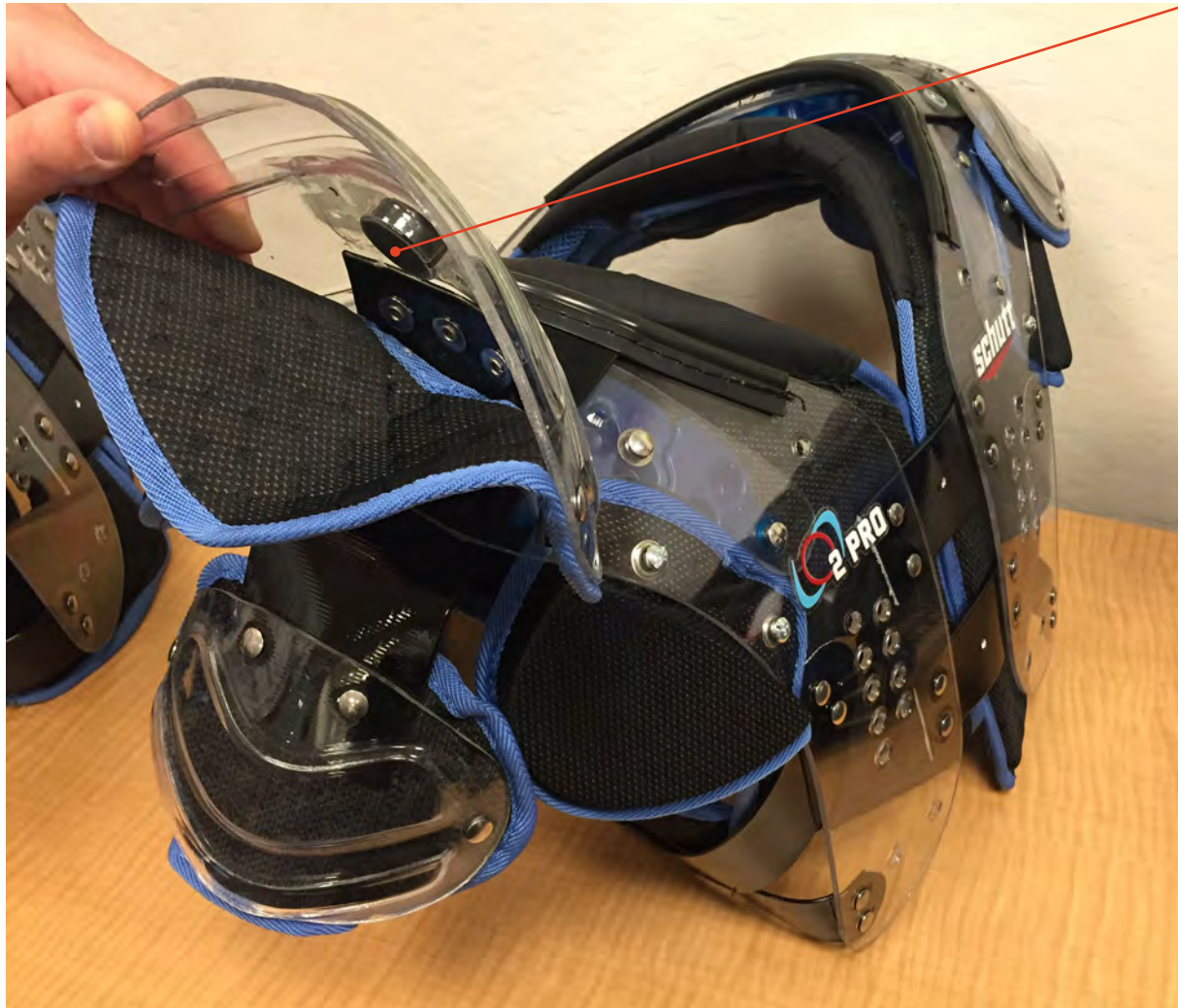
## **Visual Design**

**Good:** Clean layout, uses tags to identify specific information

**Bad:** Not very designed

Example Ten: Zebra Technologies RFID Technology

RFID sensor is placed in the shoulder pads of the athlete



# Example Ten: Zebra Technologies RFID Technology

The screenshot displays the Football Play Editor (V12.20) interface. At the top, it shows 'QUARTER: 2', a large digital clock at '00:06:04', and 'DOWN: 0'. The score is '07' on the left and '13' on the right. Below this, it indicates '00 TO GO', 'PLAY CLOCK 25', and 'BALL ON 35 SF'. The central field diagram shows player positions with blue and red markers. To the left is a log of game events with columns for 'Name' and 'Value'. To the right are rosters for the San Francisco 49ers and Arizona Cardinals, along with a 'Players on field' section. At the bottom, there is a 'Game events' control panel with buttons for 'Huddle', 'Run', 'Tackle', 'Penalty...', 'Touchback', 'Huddle break', 'Pass...', 'Out of Bounds', 'Line set', 'Kick...', 'Touchdown!', 'Man in motion', 'Handoff', '2-pt conversion', 'Timeout...', 'Ball snap', 'Fumble...', 'Other...', 'End play', and 'Submit play'. A 'LIVE' button and a '22:27:08' timer are also visible. The bottom left corner features the 'Levi's Stadium' logo.



# OVERALL DESIGN CRITERIA

After a thorough investigation of the competitive landscape, I have determined that my solution must include the following criteria:

## **Experience Concept**

*Conceptually, my solution will..*

- Provide a more complete performance assessment in order to make more informed decisions
- Make the data displayed within the app easy to understand and more contextual
- Empower coaches to trust in the validity of the data in the application in order to make quick decisions
- Minimize stress of accessing so much information by utilizing page tabs, rather than having to go back to a main menu page
- Not overwhelm or confuse the user with too much information at one time
- Motivate coaches to use the app during in-game and post-game play

## **Functionality**

*Functionally, my solution will enable Jack to...*

- View biometric info so as to indicate how health could be affecting performance of players
- Gather information on physical interactions between players of opposing teams, to help indicate how certain players impact performance
- Compare one player against an opposing player in certain areas of play based on previous performances
- View most successful lineups based on previous performances
- Filter previous plays by game, quarter, and side of the ball, and examine how a play could have been performed more successfully
- View social media posts pertaining to the team and its players

## **Visual design**

*The design of my solution will...*

- Utilize an unobtrusive physical device
- Showcase sans serif fonts that evoke an athletic feel
- Highlight the color palettes of the teams showcased, with more simple, neutral branding usage
- Visually convey and connect sets of data by placing them in close proximity to one another or placing the data within the same chart



**APPENDIX C**

**PROTOTYPING PROCESS  
DOCUMENT**



# ONEUP

## PROTOTYPING PROCESS DOCUMENT

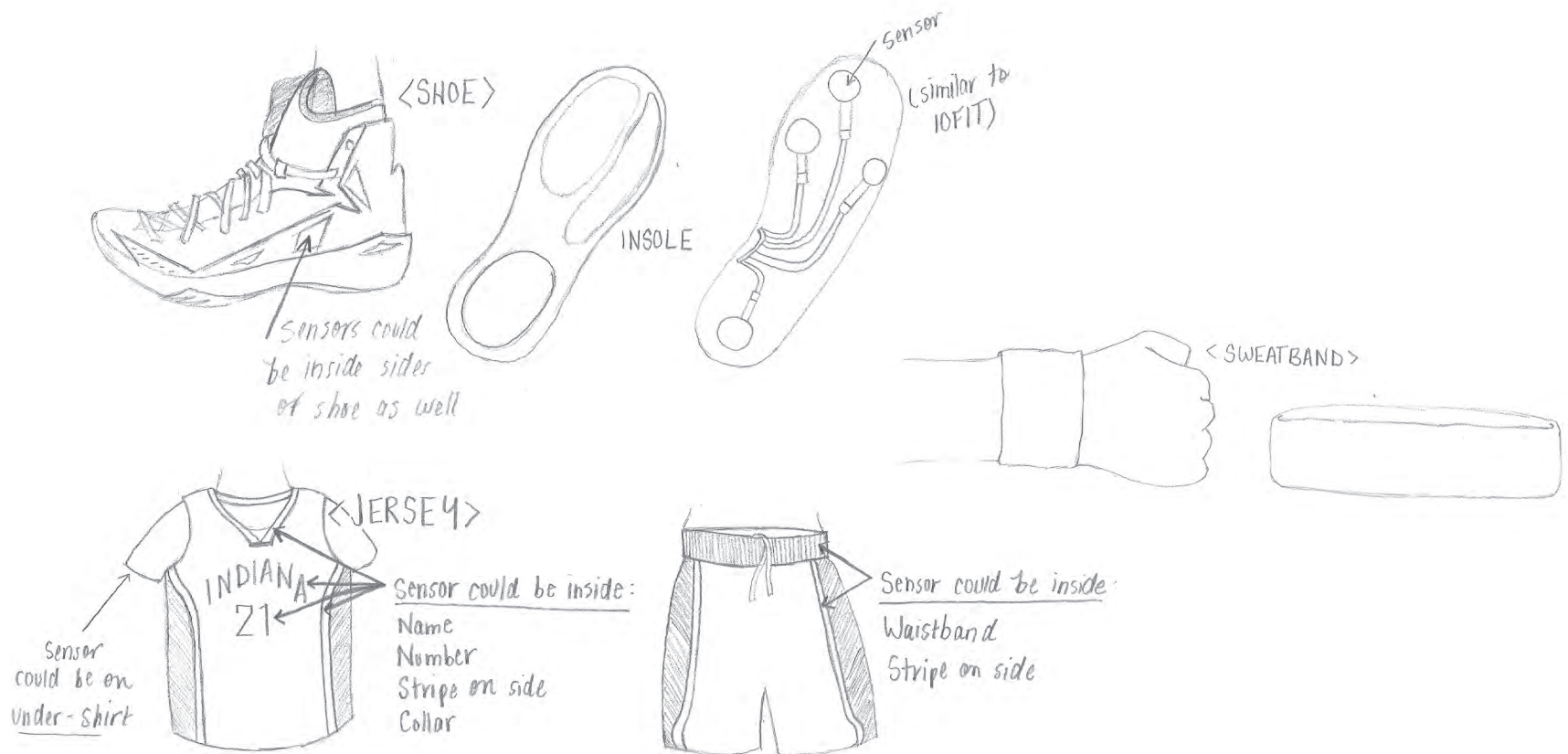
**NOTE:** *With my target audience being basketball coaches (an audience that is not readily available for feedback), trying to pursue feedback from coaching and statistical professionals, and with the length of time taken to receive responses, the feedback on my prototypes may be light. I have yet to implement all edits based on the comments I've been given, as I've very recently received much of this feedback. A "Plan of Action" will be presented at the end of this document, indicating where edits will be made in the future.*

The background is a dark grey color with a repeating watermark of the letter 'U' in a lighter shade. There are two large, thick red arrows: one on the left pointing up and to the right, and one on the right pointing down and to the left.

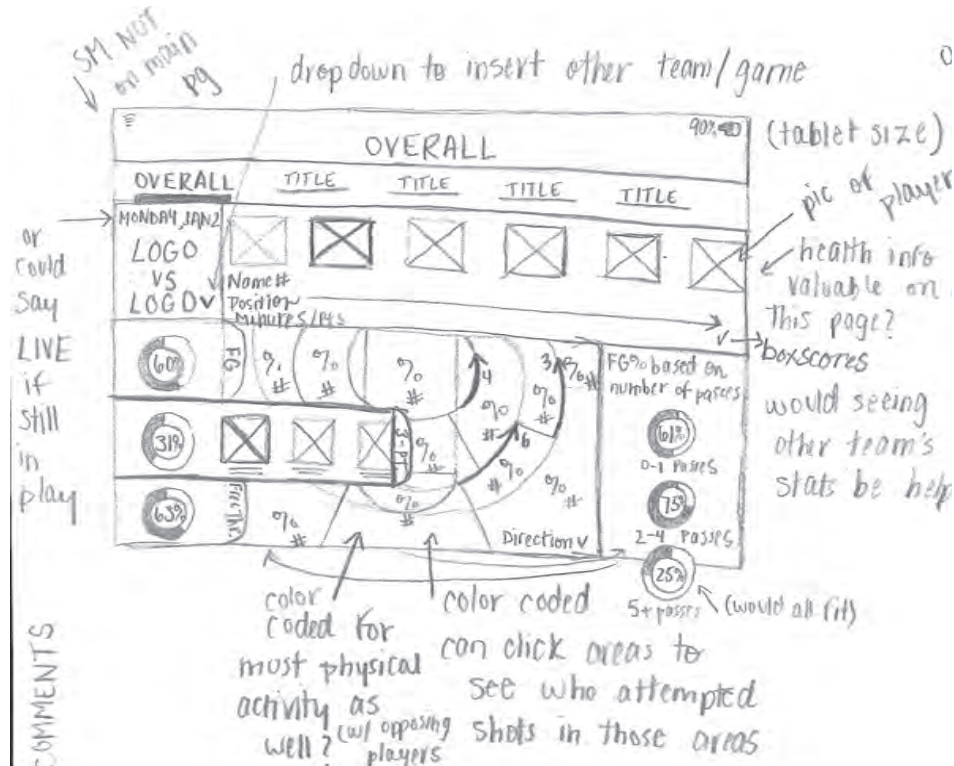
# ***LOW FIDELITY PROTOTYPES***



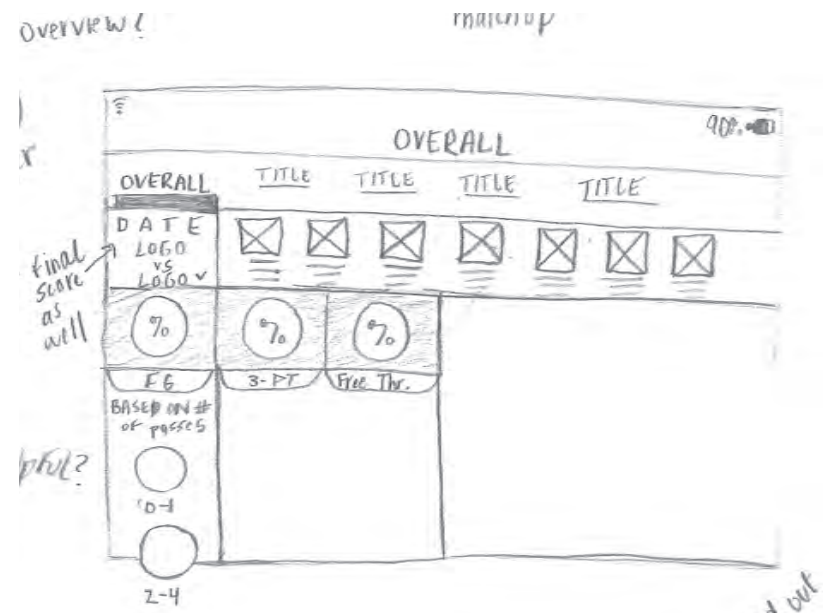
# LOW FIDELITY PROTOTYPES



# LOW FIDELITY PROTOTYPES

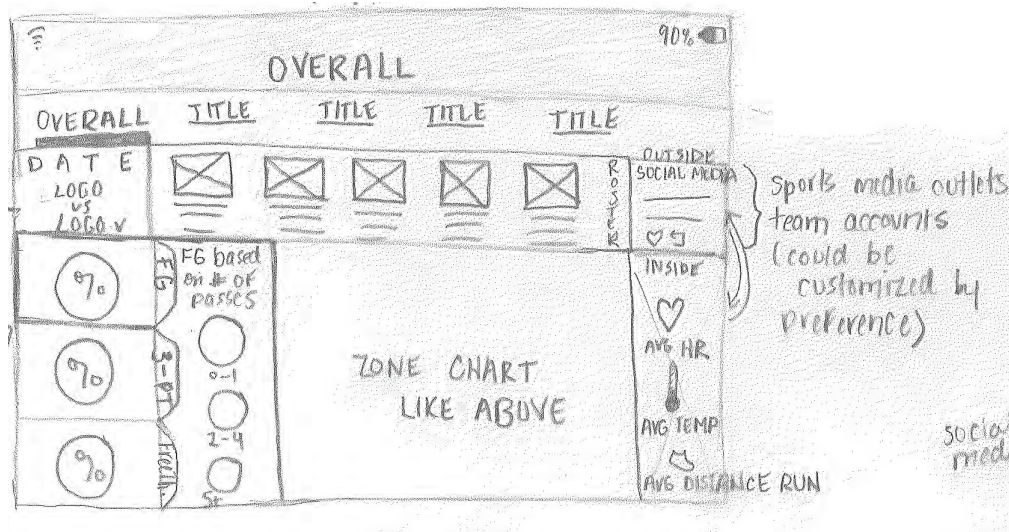


DASHBOARD

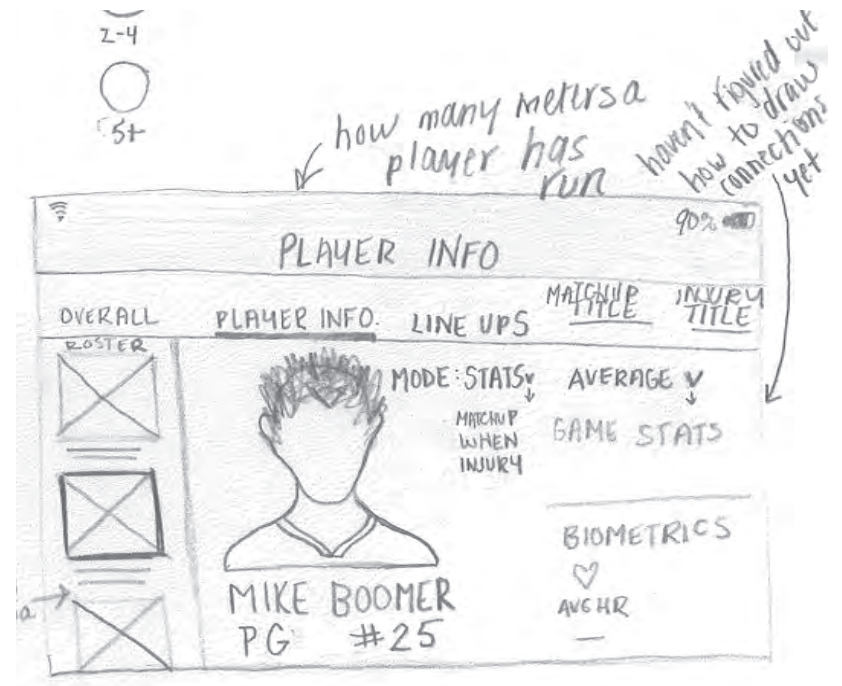


DASHBOARD

# LOW FIDELITY PROTOTYPES

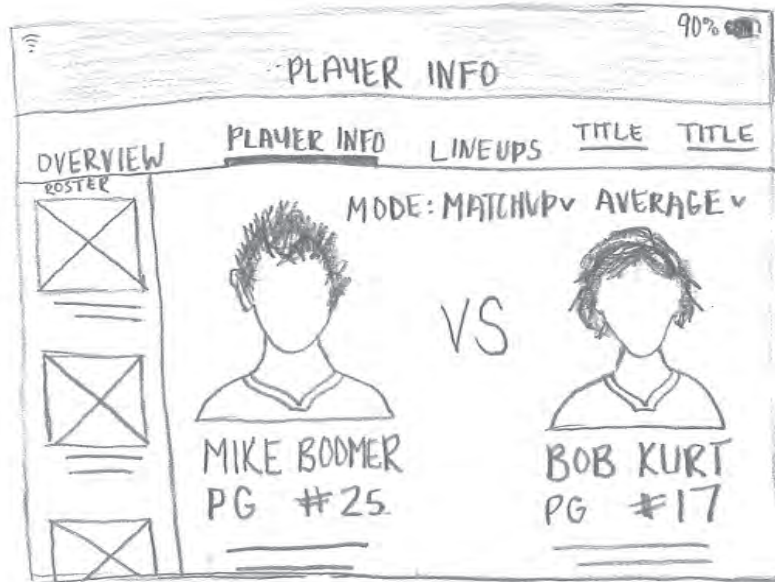


DASHBOARD



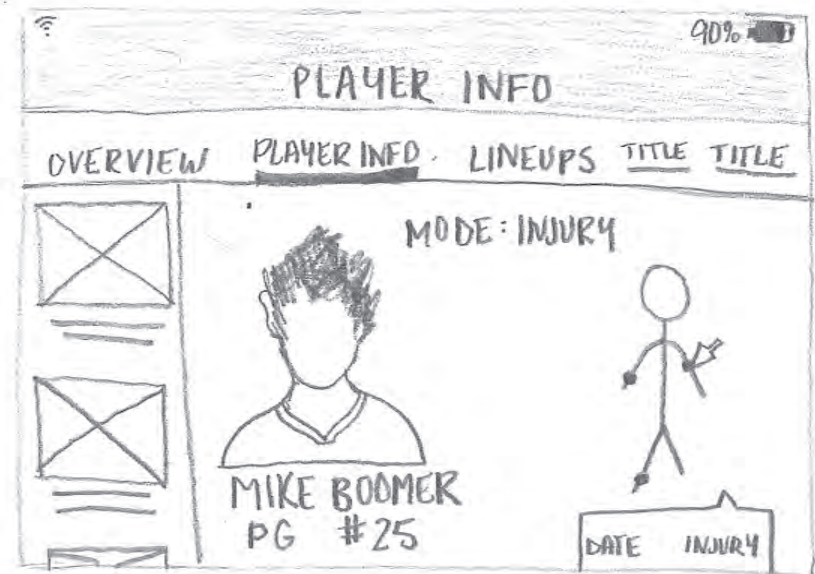
PLAYER INFO PAGE

# LOW FIDELITY PROTOTYPES



video clips

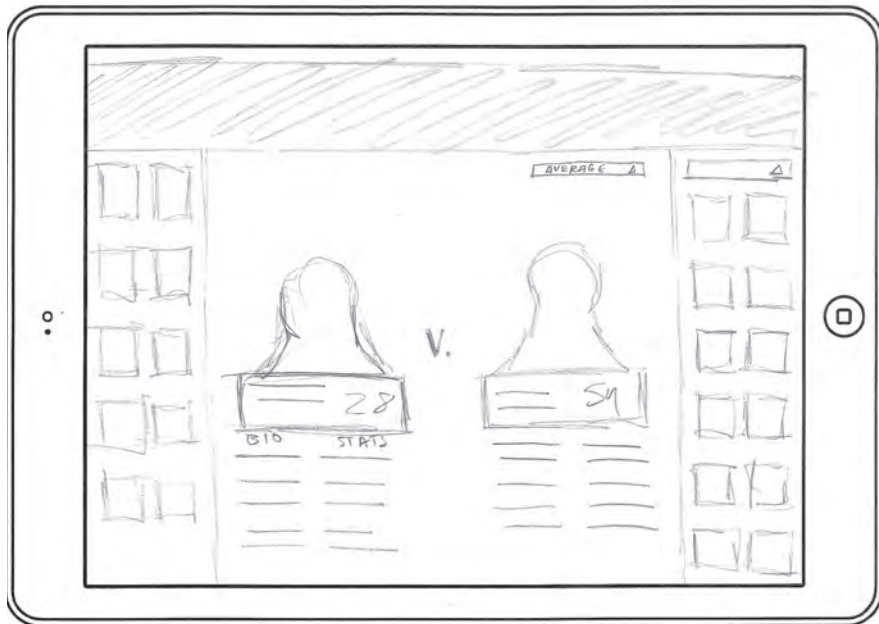
MATCHUP PAGE



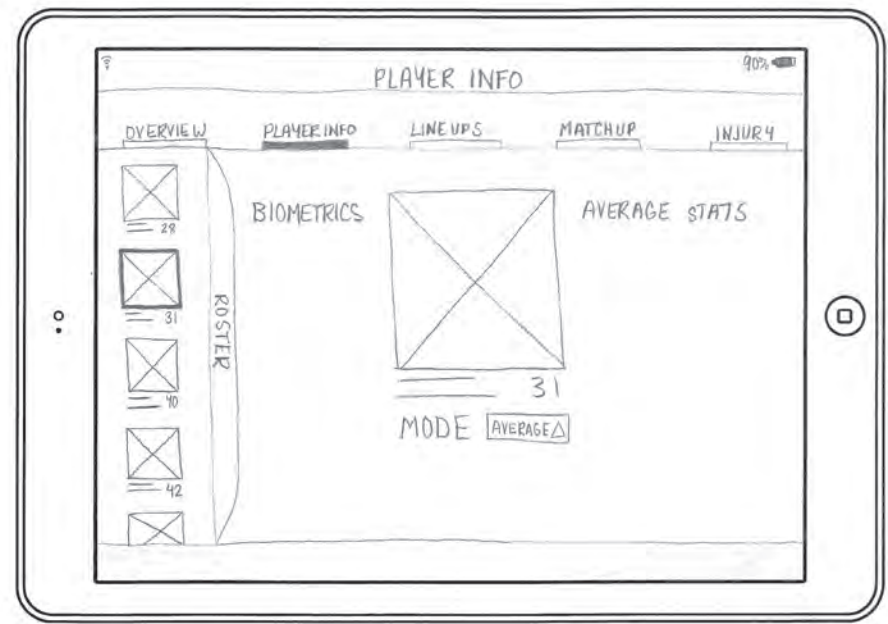
more predictive (needs to be)

INJURY PAGE

# LOW FIDELITY PROTOTYPES



MATCHUP PAGE



PLAYER INFO PAGE

# LOW FIDELITY PROTOTYPES: RESPONSE

FEEDBACK FROM:

**M. David Lovell, continued...**

Sport Marketing Instructor,  
NCAA Assoc. Director of Branding  
& Fan Experience

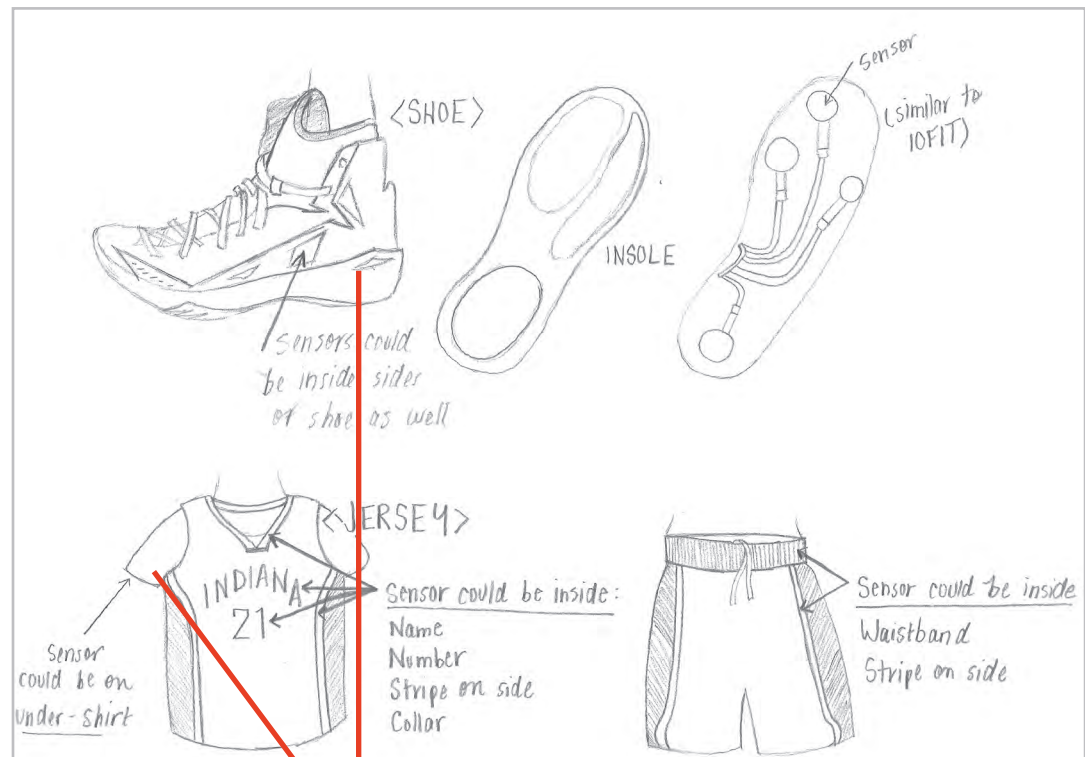
GOALS:

**Vet the 3 fringe aspects of my core idea with my user.**

- ▶ 1. I need to know what form the sensor technology should take.
- 2. I need to know the best way to display, contextualize, and draw connections between different data, visually.
- 3. I need to know if social media information would be helpful to a coach.

INSIGHTS:

In the future, I need properly frame the info I want to obtain from my user in order to better keep there focus on what's important for my purposes



Sole of the shoe or athletic undershirt would be best so the sensor is in secure location, with little risk of detachment

# LOW FIDELITY PROTOTYPES: RESPONSE

FEEDBACK FROM:

## M. David Lovell, continued...

Sport Marketing Instructor,  
NCAA Assoc. Director of Branding  
& Fan Experience

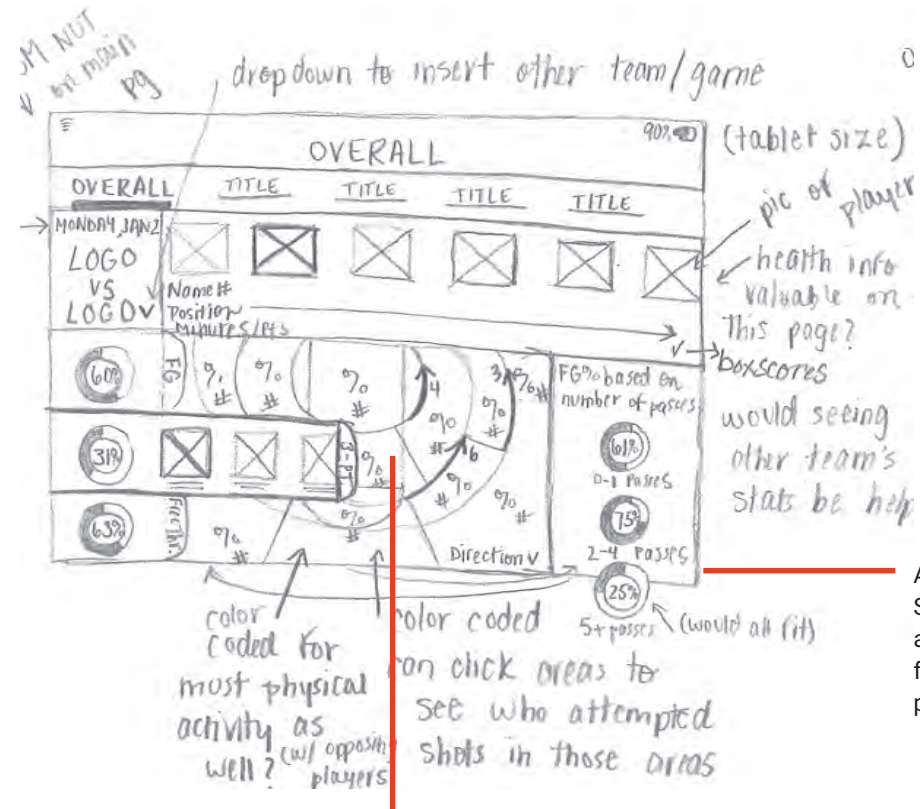
GOALS:

### Vet the 3 fringe aspects of my core idea with my user.

1. I need to know what form the sensor technology should take.
2. I need to know the best way to display, contextualize, and draw connections between different data, visually.
3. I need to know if social media information would be helpful to a coach.

INSIGHTS:

- Use Windows Surface or Android interface
- Be cautious of overlaying TOO much info



Android or Windows Surface would be best, as those are most frequently used and/or promoted in sports

Overlaying too much information on zone chart will likely look too complicated for an overview page

# LOW FIDELITY PROTOTYPES: RESPONSE

FEEDBACK FROM:

**M. David Lovell, continued...**

Sport Marketing Instructor,  
NCAA Assoc. Director of Branding  
& Fan Experience

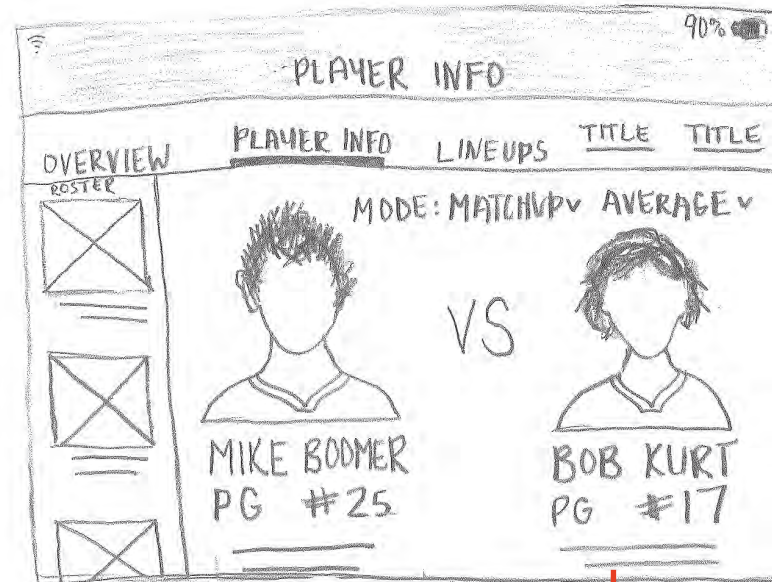
GOALS:

**Vet the 3 fringe aspects of my core idea with my user.**

1. I need to know what form the sensor technology should take.
- ▶ 2. I need to know the best way to display, contextualize, and draw connections between different data, visually.
3. I need to know if social media information would be helpful to a coach.

INSIGHTS:

Video clips may be useful in comparing players



Could include video clips of athletes playing against one another beneath info



# LOW FIDELITY PROTOTYPES: RESPONSE

FEEDBACK FROM:

**M. David Lovell, continued...**

Sport Marketing Instructor,  
NCAA Assoc. Director of Branding  
& Fan Experience

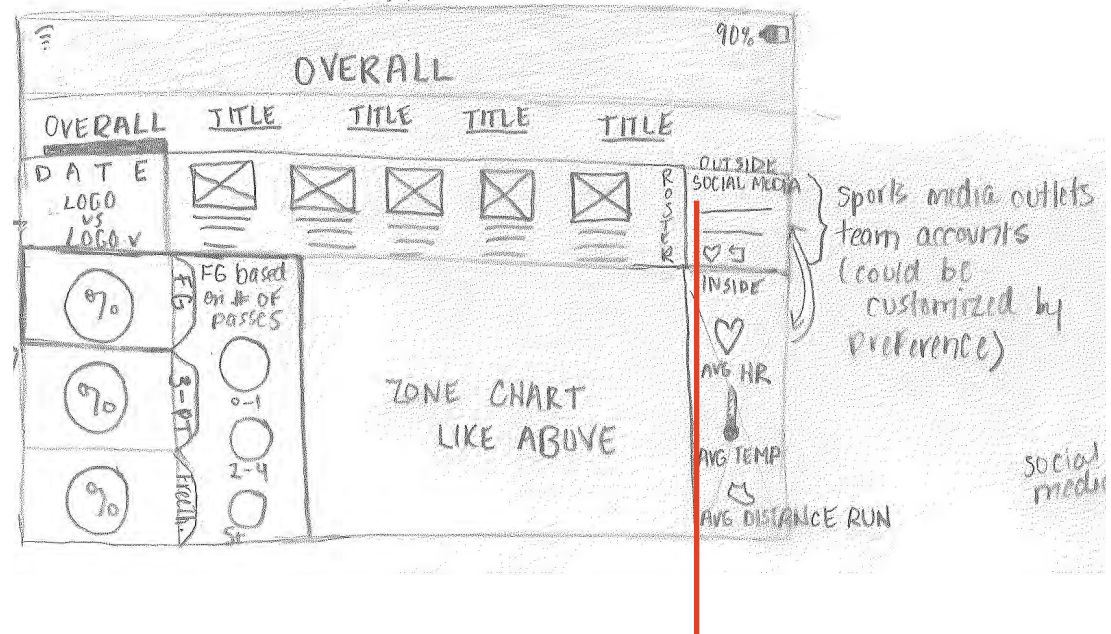
GOALS:

**Vet the 3 fringe aspects of my core idea with my user.**

1. I need to know what form the sensor technology should take.
2. I need to know the best way to display, contextualize, and draw connections between different data, visually.
- ▶ 3. I need to know if social media information would be helpful to a coach.

INSIGHTS:

Remove social media section, not convinced it will be useful in decision-making

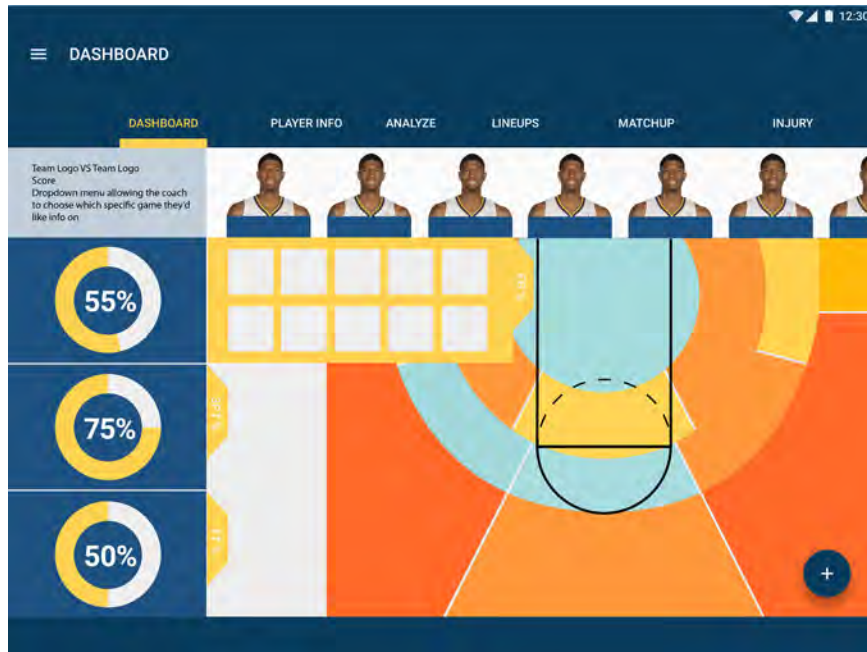


Social media might be helpful post-game, but not convinced that a coach will utilize it frequently or it will change decision-making

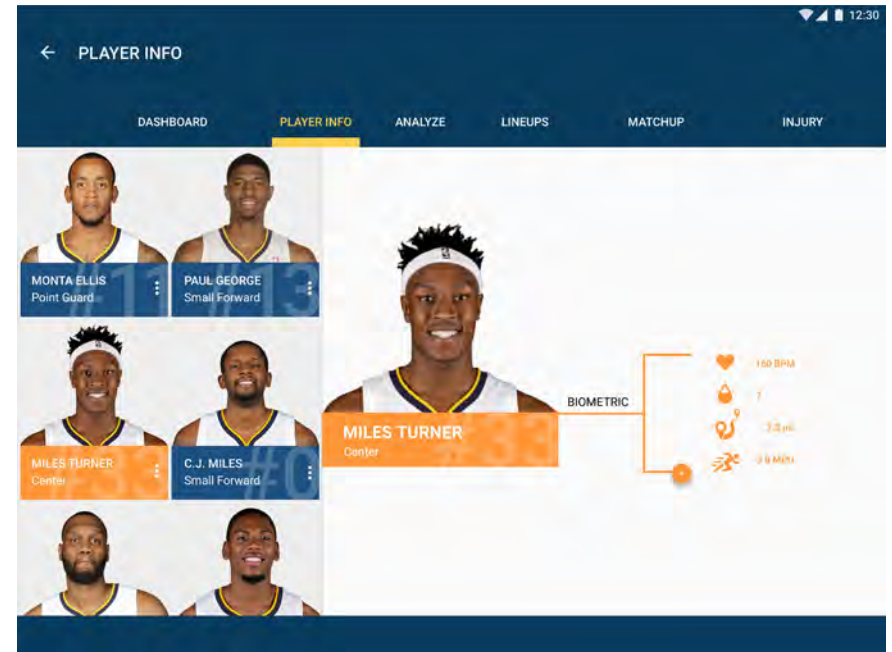


# ***MEDIUM FIDELITY PROTOTYPES***

# MEDIUM FIDELITY PROTOTYPES

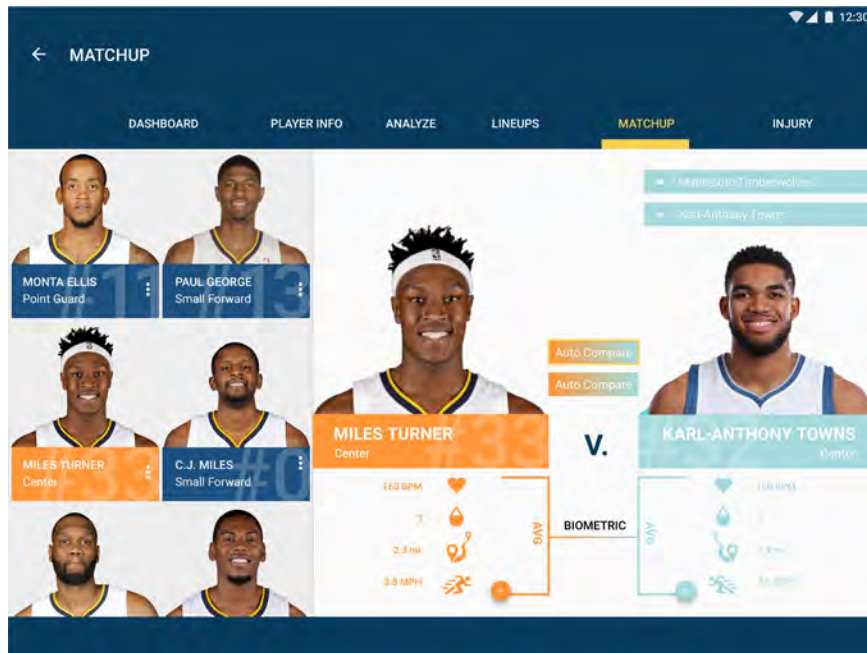


DASHBOARD

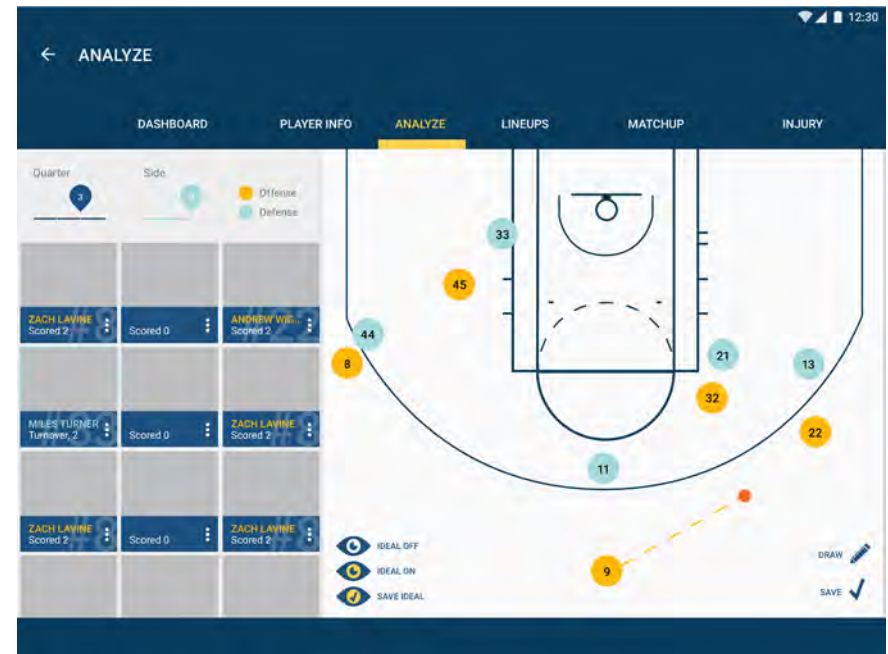


PLAYER INFO PAGE

# MEDIUM FIDELITY PROTOTYPES



MATCHUP PAGE



ANALYZE PAGE

# MEDIUM FIDELITY PROTOTYPES: RESPONSE

## FEEDBACK FROM:

**Andrew McClatchey**

IUPUI Basketball Analyst &  
Advance Scouting

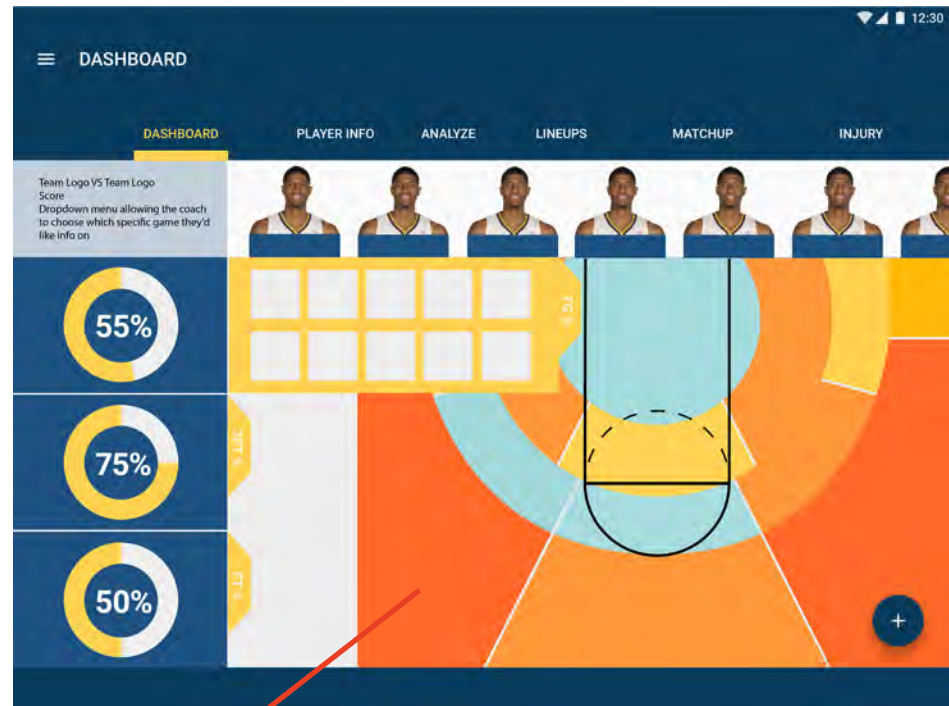
## GOALS:

Receive feedback on most up-to-date designs, especially in terms of the way data is visualized and the content that is most appropriate and valuable to present on a given page.

## INSIGHTS:

Useful to show team's %'s in each area of zone chart based on catch/shoot shots versus pull-up shots

Would be helpful to show these above %'s for each player in each area of the zone chart or compare these %'s between players



Show %'s based on catch/shoot shots versus pull-up shots, because shooting percentage can be greatly affected by the amount of dribbles taken before a shot

If these %'s could be shown for each player in each area of the zone chart or these %'s can be compared between players, that would be useful as well.

# MEDIUM FIDELITY PROTOTYPES: RESPONSE

## FEEDBACK FROM:

**Andrew McClatchey**

IUPUI Basketball Analyst &  
Advance Scouting

## GOALS:

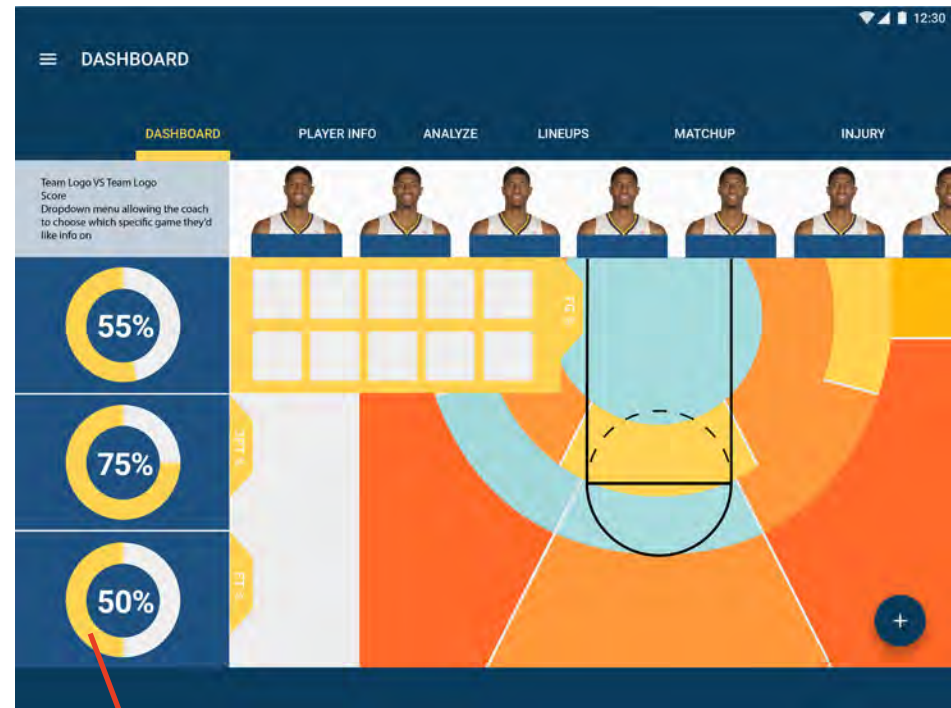
Receive feedback on most up-to-date designs, especially in terms of the way data is visualized and the content that is most appropriate and valuable to present on a given page.

## INSIGHTS:

Certain advanced team stats would be useful on this particular page (shown in annotations)

Have stats broken up by total game and by quarter

Have a running total of these stats for total season and over a stretch of games



These team advanced stats would be valuable on this page: Pace, Offensive Rating (RTG), Defensive RTG, 2PT & 3PT %, Off. Rebound %, Def. Rebound %, Turnover %, Assisting %, how often the team is grabbing loose balls (50/50 balls), how often a team gets 3 stops in a row defensively (3 stops)

Would be cool to see these stats broken up by total game data and also by quarter

Would be helpful to see a running total of these stats for the total season and over a certain stretch of games (last 5 games, last 10 games, etc.)

# MEDIUM FIDELITY PROTOTYPES: RESPONSE

## FEEDBACK FROM:

**Andrew McClatchey**

IUPUI Basketball Analyst &  
Advance Scouting

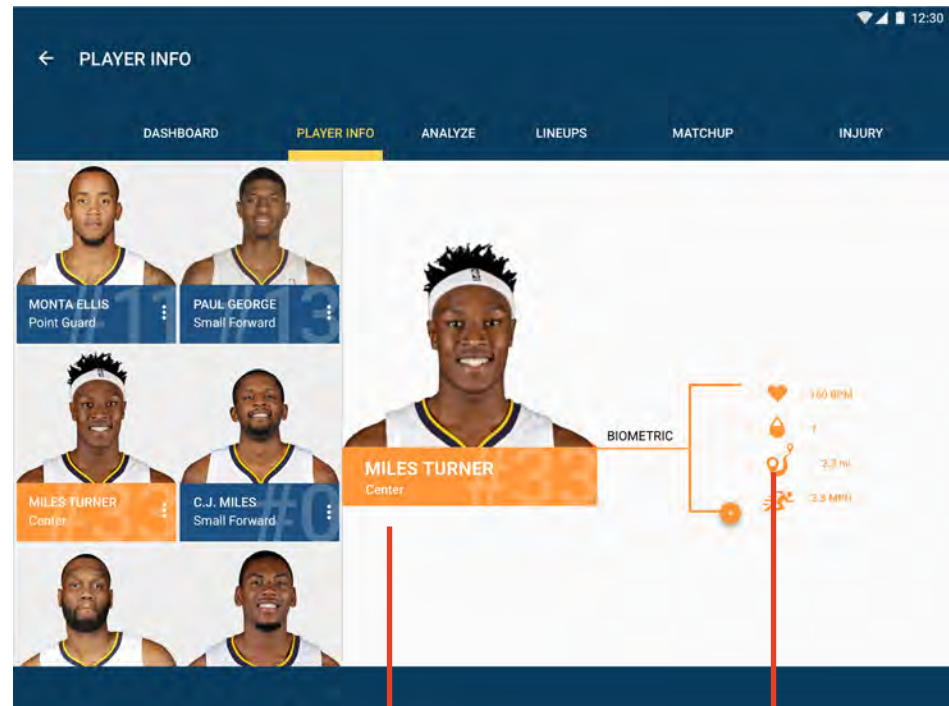
## GOALS:

Receive feedback on most up-to-date designs, especially in terms of the way data is visualized and the content that is most appropriate and valuable to present on a given page.

## INSIGHTS:

Certain advanced stats would be especially valuable on the player info page (shown in annotations)

Provide visual comparing athlete's stats to league average for that position



These advanced stats would be valuable in this area: Offensive Rating (RTG), Defensive RTG, 2PT & 3PT %, Off. Rebound %, Def. Rebound %, Turnover %, Assisting %, Deflection % (DEFL%)

Would be helpful to have visual comparing athlete's numbers to league average of that position only

# MEDIUM FIDELITY PROTOTYPES: RESPONSE

FEEDBACK FROM:

**Andrew McClatchey**

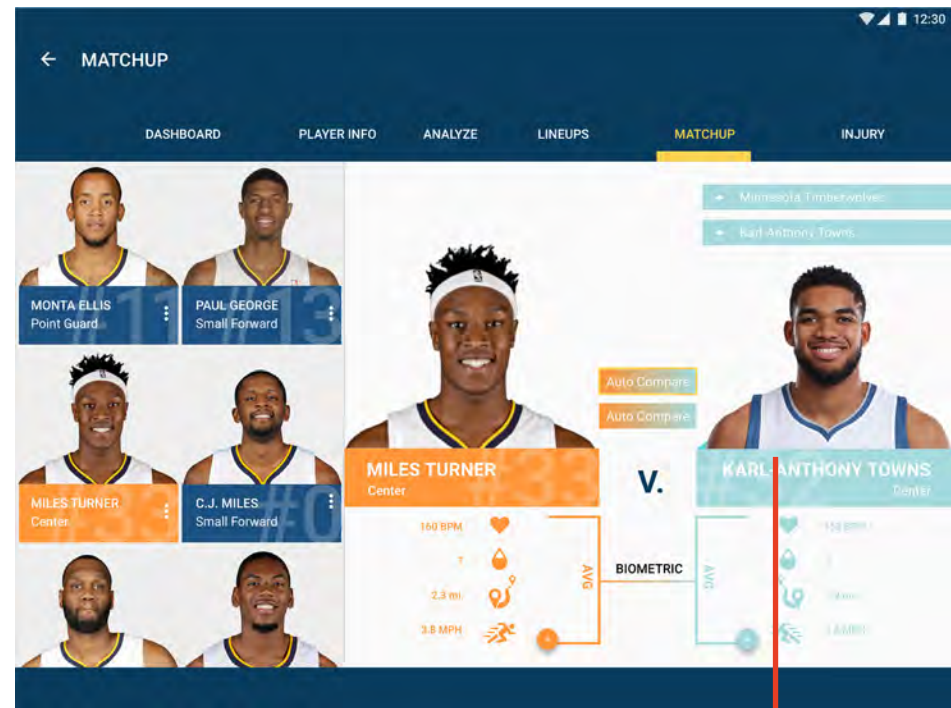
IUPUI Basketball Analyst &  
Advance Scouting

GOALS:

Receive feedback on most up-to-date designs, especially in terms of the way data is visualized and the content that is most appropriate and valuable to present on a given page.

INSIGHTS:

Provide coach the option to easily compare two players on his own team



Should be able to allow coach to compare two players on his own team, not just opposing players



# MEDIUM FIDELITY PROTOTYPES: RESPONSE

## FEEDBACK FROM:

**Andrew McClatchey**

IUPUI Basketball Analyst &  
Advance Scouting

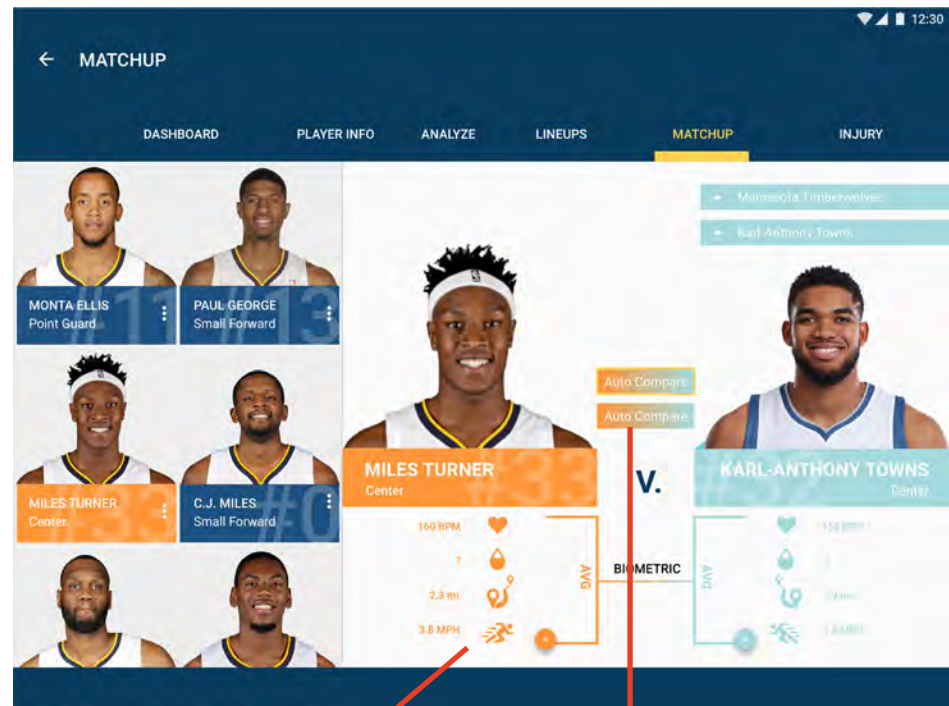
## GOALS:

Receive feedback on most up-to-date designs, especially in terms of the way data is visualized and the content that is most appropriate and valuable to present on a given page.

## INSIGHTS:

Include feature that allows coach to compare players over a certain lengths of time

“Auto Compare” button would be useful at beginning of season, but less useful later



Include feature that allows coach to compare players over different lengths of time (ex. over the past 6 games, or since a certain date)

This button would be useful towards the beginning of the season, but not as useful later in the season as teams become more familiar with each other

# MEDIUM FIDELITY PROTOTYPES: RESPONSE

FEEDBACK FROM:

**Andrew McClatchey**

IUPUI Basketball Analyst &  
Advance Scouting

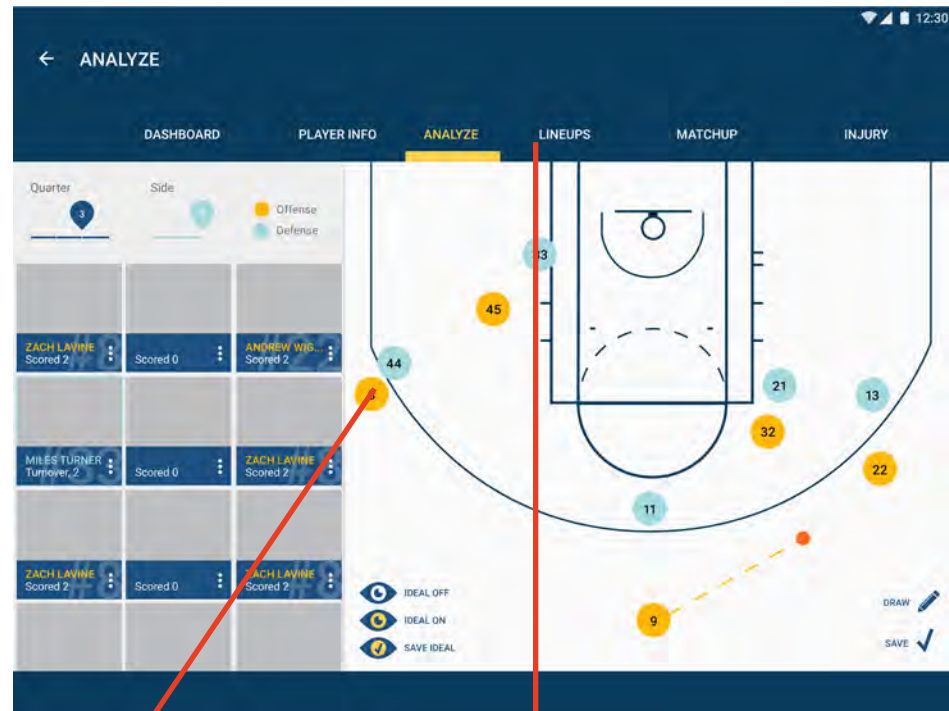
GOALS:

**Receive feedback on most up-to-date designs, especially in terms of the way data is visualized and the content that is most appropriate and valuable to present on a given page.**

INSIGHTS:

Visually show how successful each defense has been over the course of the game

Have best “Guards” and “Bigs” combos on Lineups page would be useful for a coach



Would be useful to show coach how successful each defense has been over the course of a game

“Guards” and “Bigs” combos would be useful on Lineups page, useful to see which 3 guards (perimeter players) play best together, and which 2 bigs (post players) play best together

# MEDIUM FIDELITY PROTOTYPES: RESPONSE

FEEDBACK FROM:

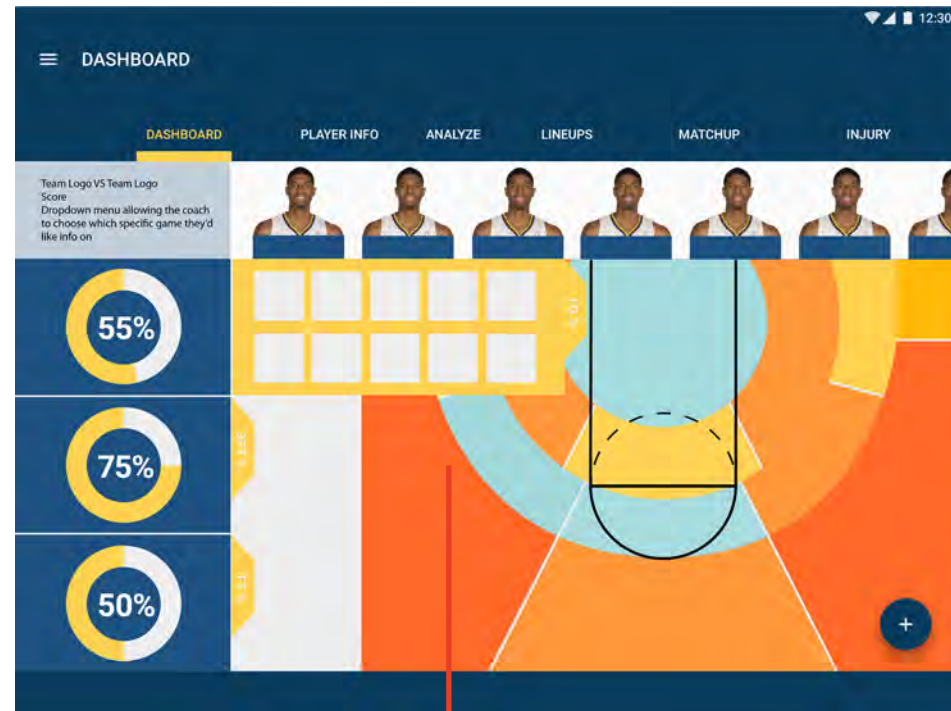
Prof. Aaron Ganci & HER-V 413 class  
In-class reviewers

GOALS:

Receive feedback on how  
I'm representing content visually,  
layout, color palette, etc.

INSIGHTS:

Color palette appears too feminine  
for my target audience



Color palette is lighter  
and too feminine for  
my target audience

# MEDIUM FIDELITY PROTOTYPES: RESPONSE

FEEDBACK FROM:

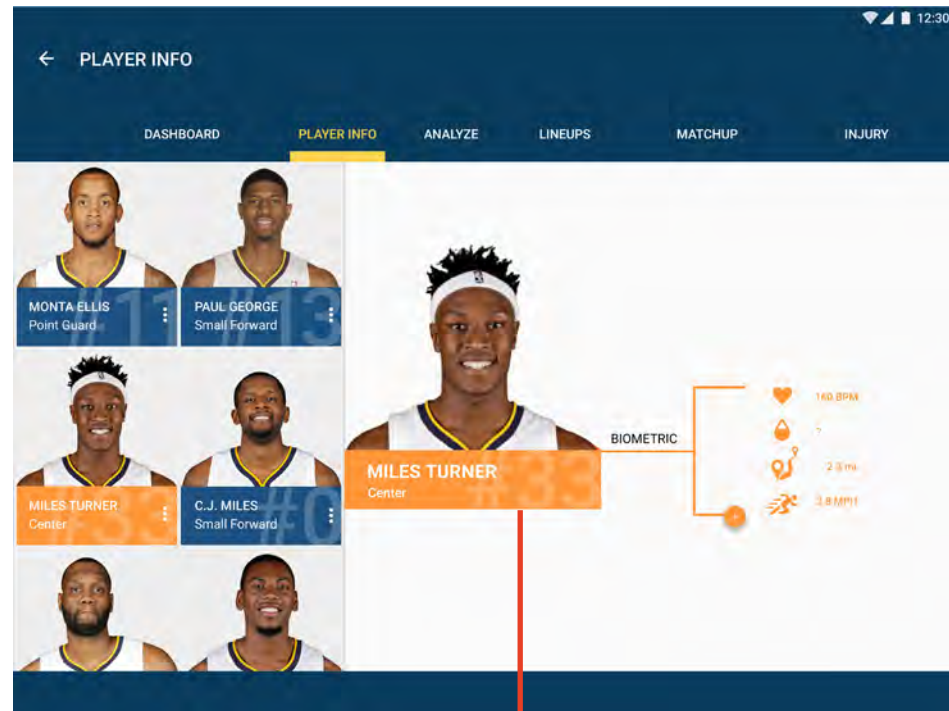
Prof. Aaron Ganci & HER-V 413 class  
In-class reviewers

GOALS:

Receive feedback on how I'm representing content visually, layout, color palette, etc.

INSIGHTS:

Once player is chosen, have the player's info filter to all pages, so user doesn't have to continue to choose a player to receive info



Consider how easily user is able to access the same player info seamlessly across all pages, feeling a bit of a disconnect between pages

# MEDIUM FIDELITY PROTOTYPES: RESPONSE

## FEEDBACK FROM:

Prof. Aaron Ganci & HER-V 413 class  
In-class reviewers

## GOALS:

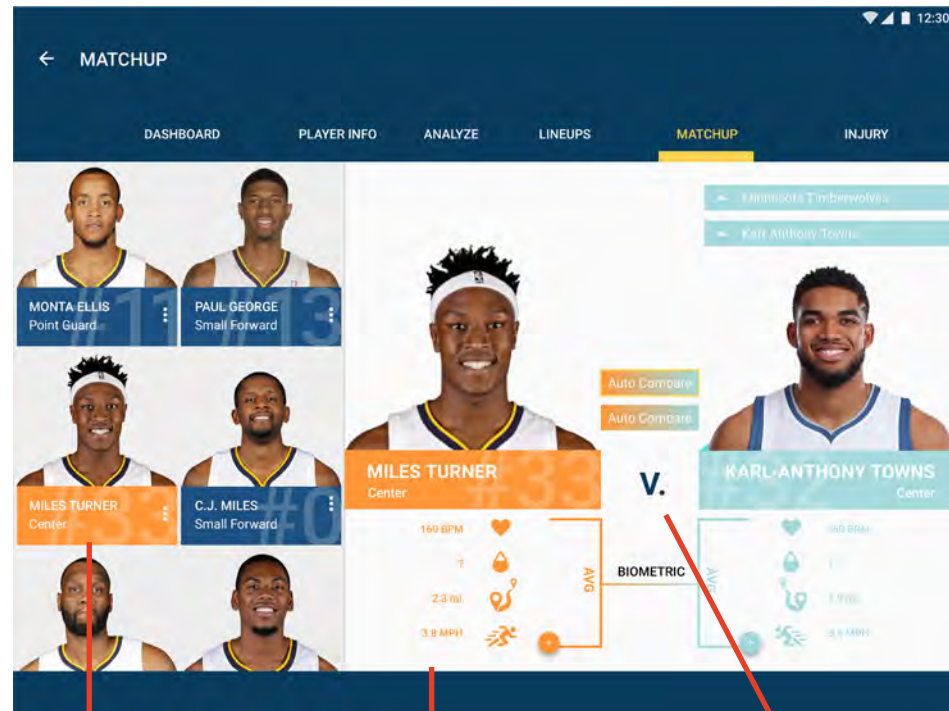
Receive feedback on how I'm representing content visually, layout, color palette, etc.

## INSIGHTS:

Should provide an option to hide roster list so the combination of the roster and the content-heavy right side doesn't seem overwhelming

Use horizontal bar graph to compare biometric information between athlete's and against a league average

**Overall comment:** focus on what specific tasks you want the user to go through



Seeing the roster on the left with the heavy content on the right seems a bit overwhelming, would be nice to hide the roster if necessary

Consider using bar graph format to compare athlete's biometric data against one another and against a league average

Comparison of athlete's would be really helpful for a coach

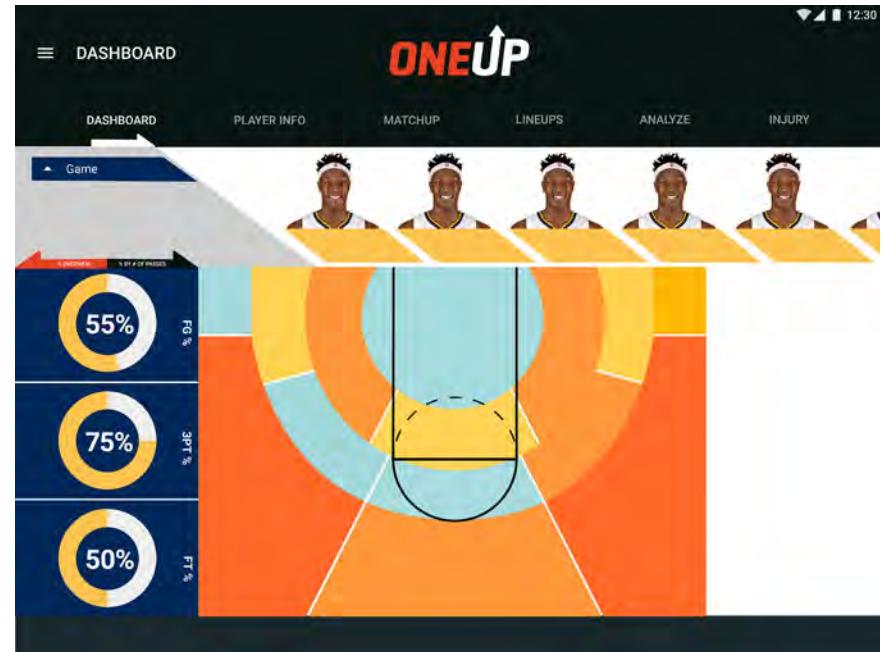


# ***HIGH FIDELITY PROTOTYPES***

# HIGH FIDELITY PROTOTYPES

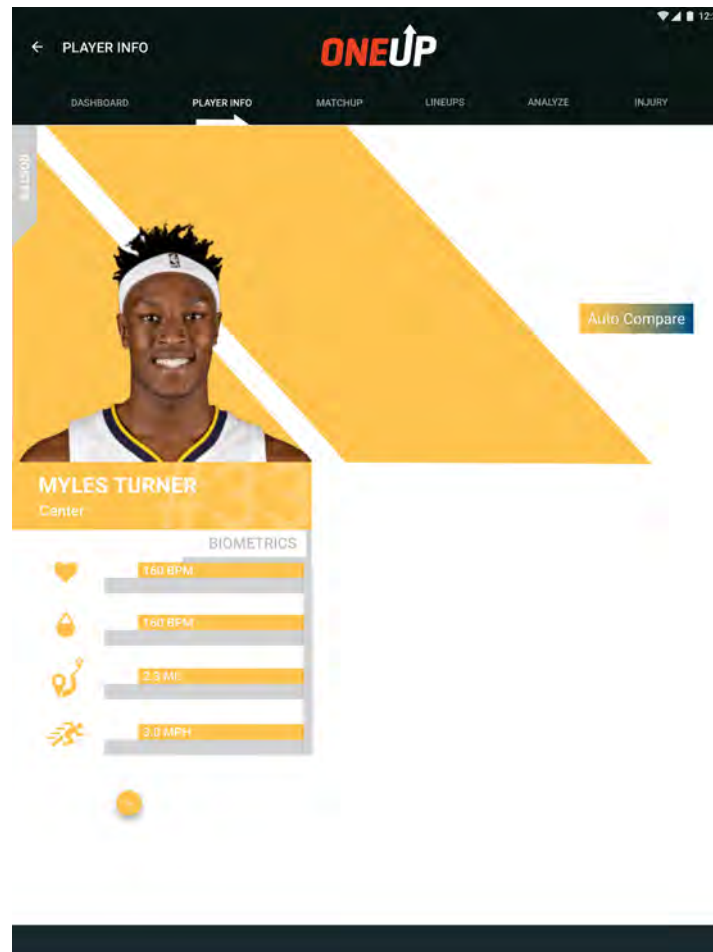


LOADING PAGE



DASHBOARD

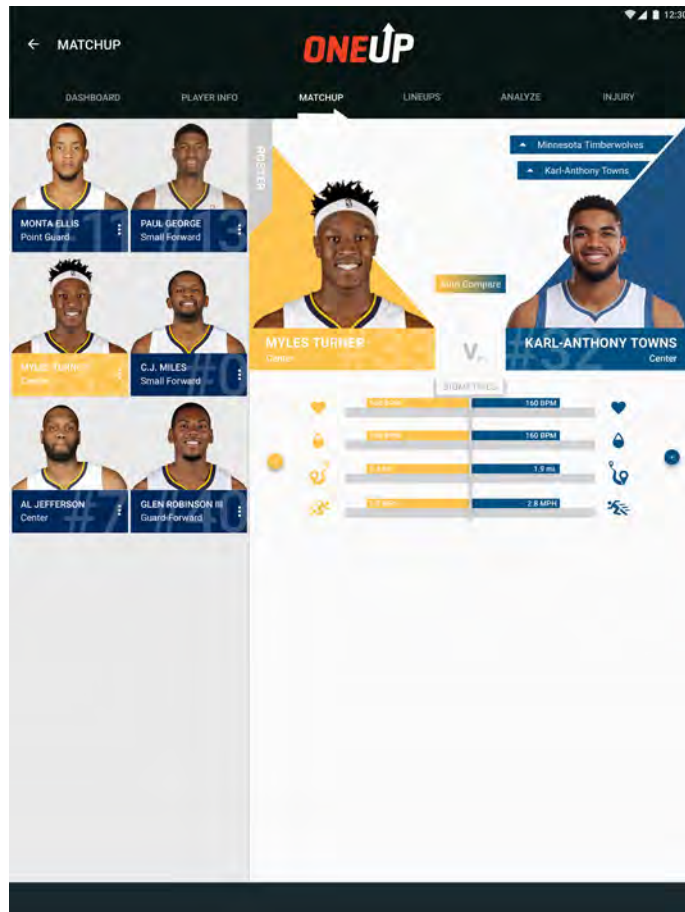
# HIGH FIDELITY PROTOTYPES



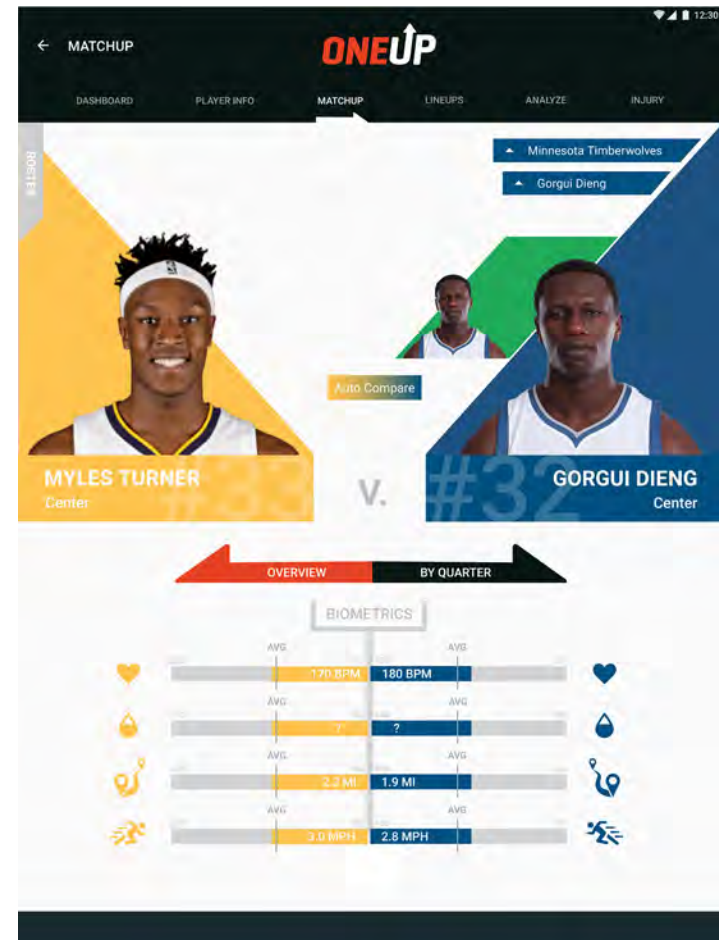
PLAYER INFO PAGE



# HIGH FIDELITY PROTOTYPES

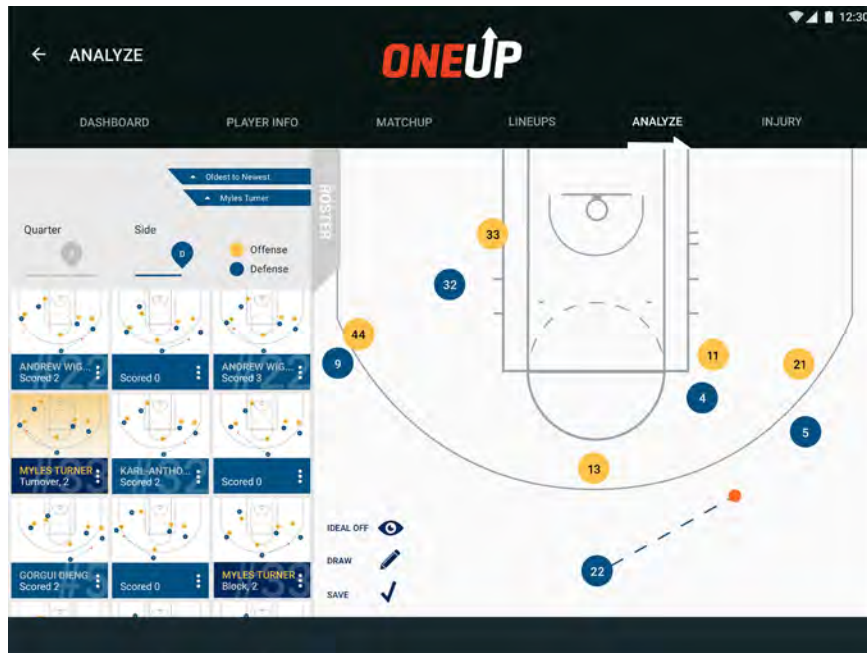


MATCHUP PAGE

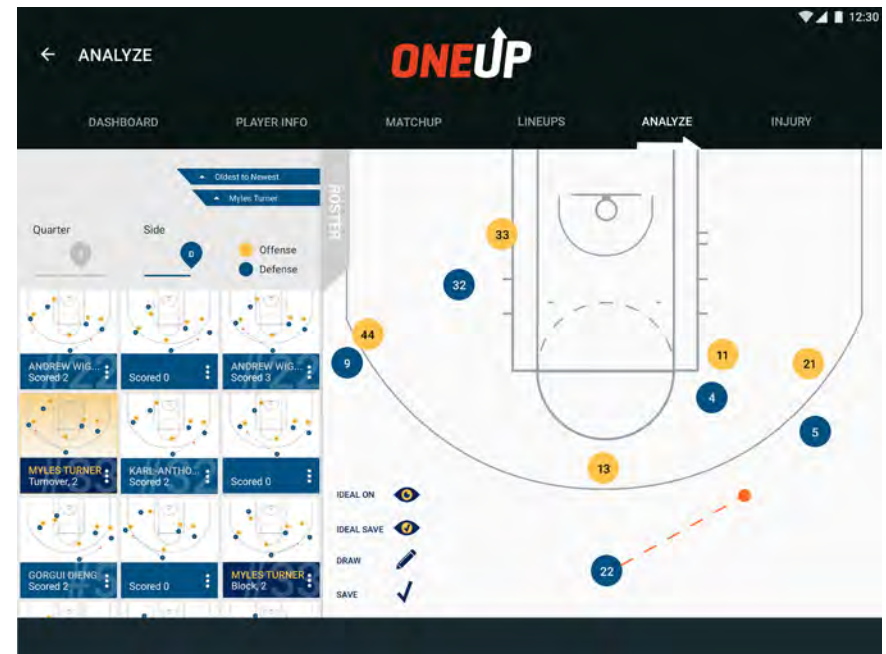


MATCHUP PAGE

# HIGH FIDELITY PROTOTYPES



ANALYZE PAGE



ANALYZE PAGE

# HIGH FIDELITY PROTOTYPES: RESPONSE

## FEEDBACK FROM:

### Pat Boylan

Host & Sideline Reporter for the Pacers radio network, contributor to the Pacers telecasts on Fox Sports Indiana

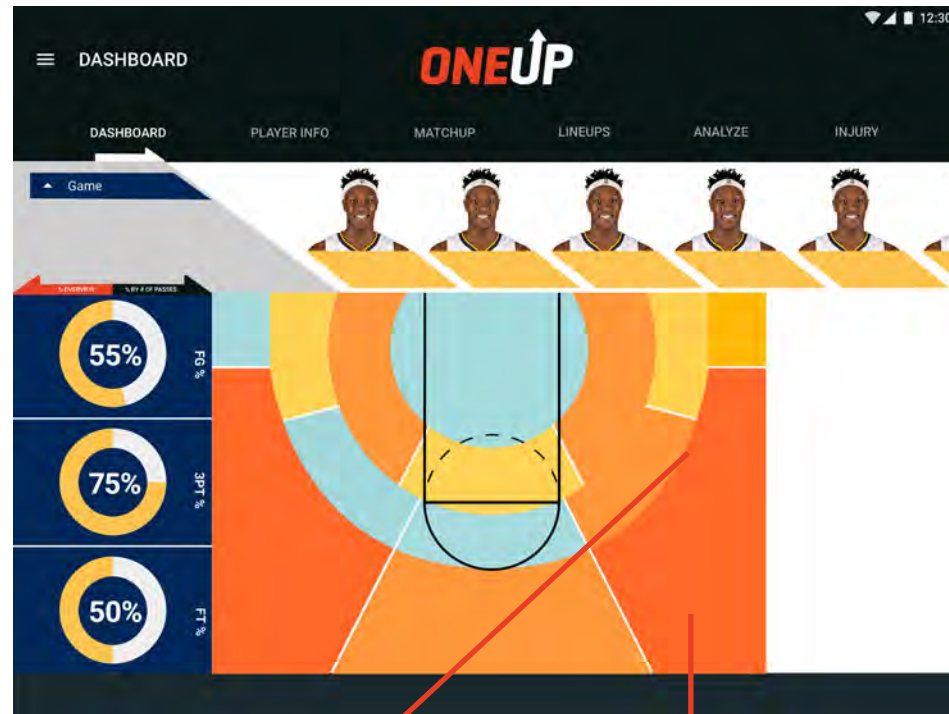
## GOALS:

To gain a further understanding of the statistics that would be valuable and most appropriate on certain pages, and how those stats can be displayed in the proper way (I hadn't received feedback from Andrew McClatchey at this point).

## INSIGHTS:

There are specific team stats that would be valuable on the dashboard (shown in annotations), and they're similar to one's stated by **Andrew McClatchey**.

Social media may be helpful for a coach in terms of how certain media could affect the mindsets of players and affect their play. Coaches would want knowledge of that. It would be less about social media affecting decision-making. This could be in the form of a tab rather than taking up too much space.



General team stats could go here, important stats here could include: Off. Rating (RTG), Def. RTG, Net RTG, Rebound %, Pace. All level pace of play and are easy to analyze. Points per game less helpful in general sense.

Social media could be helpful here in tab form, rather than taking up unnecessary space

# HIGH FIDELITY PROTOTYPES: RESPONSE

## FEEDBACK FROM:

### Pat Boylan

Host & Sideline Reporter for the Pacers radio network, contributor to the Pacers telecasts on Fox Sports Indiana

## GOALS:

To gain a further understanding of the statistics that would be valuable and most appropriate on certain pages and how those stats can be displayed in the proper way.

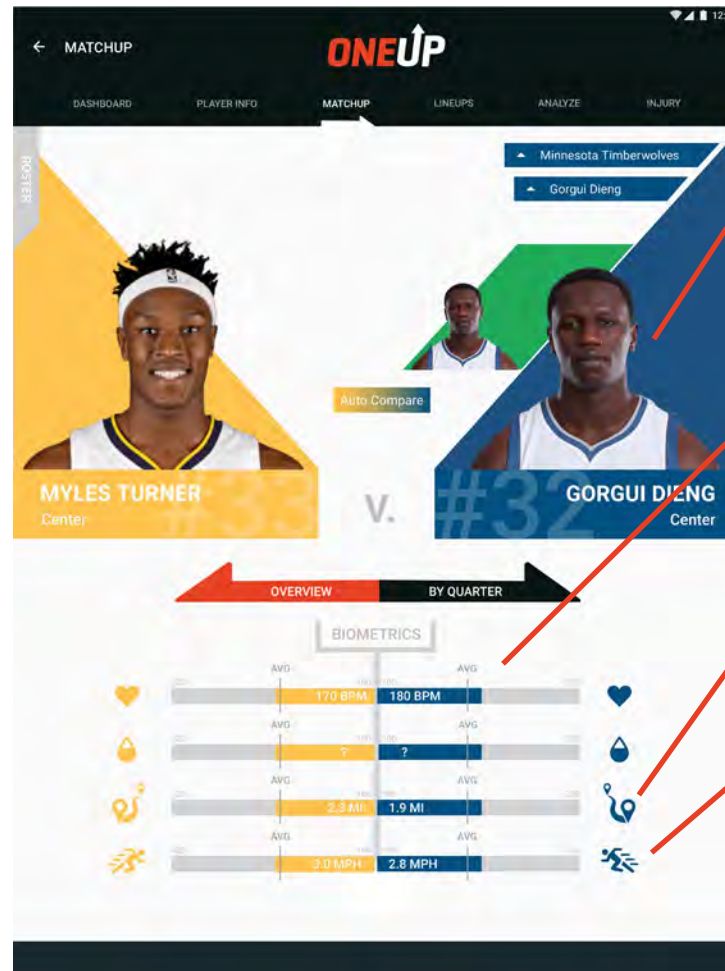
## INSIGHTS:

Tristan Thompson is a good athlete to include in the context of this matchup

Must find a better icon representation for distance

By visualizing data in a way that tells a story, it helps give further, more broaded context to the numbers

**Overall comments:** this app could be more valuable to assistant coaches in the NBA, defensive analytics have the ability to be pushed further (as that is something that isn't being focused on much currently in the NBA tech analytics landscape)



Tristan Thompson of the Cavaliers is an appropriate athlete to use in this comparison

Good way of representing this information

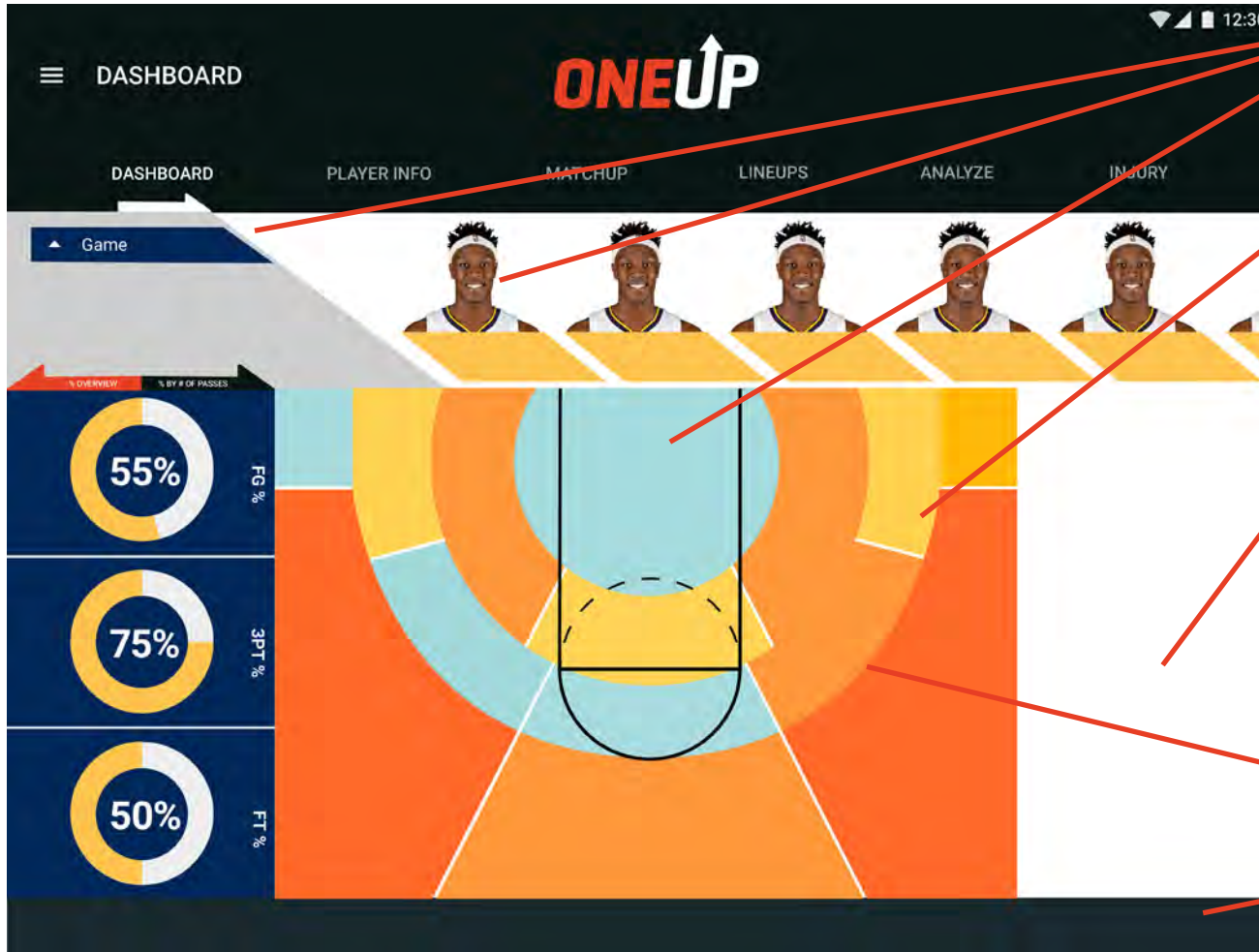
Didn't immediately know what this icon symbolized

Consider how this and the data on the dashboard could tell a story, convey it's real meaning in grander context, (ex. Teague is fouled on 2.2% of his jumpers, instead say, Teague is 2nd in the league for this stat)



# ***PLAN OF ACTION***

# HIGH FIDELITY PROTOTYPES: EDITS



Add the rest of the content to this page

Potentially provide overlay option or dropdown menu to allow coaches to see %'s of shots made based on catch/shoot shots versus pull-up shots

Include these advanced stats to this page as suggested by Andrew McClatchey & Pat Boylan

Could include this info in hidden form and the coach can pull down a tab to access it, or place it in the blank space on page

Use tabs so coach can see the above stats in the context of the game as a whole, or by quarter (Other edits based on Andrew's feedback)

Change color palette of zone chart

Potentially add social media tab somewhere at the bottom

# HIGH FIDELITY PROTOTYPES: EDITS



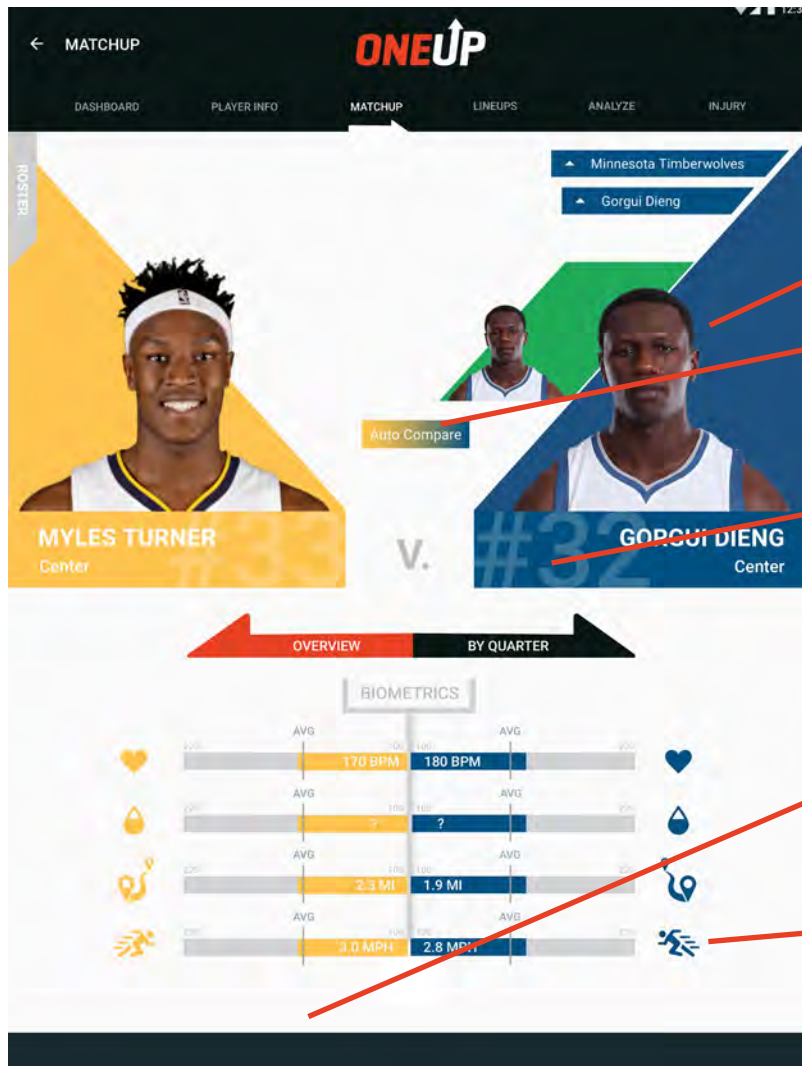
Add height, weight, college he attended, etc. here

Include button or some sort of easy way (directly on this page) to transform to the matchup page

Include these advanced stats on this page: Offensive Rating (RTG), Defensive RTG, 2PT & 3PT %, Off. Rebound %, Def. Rebound %, Turnover %, Assisting %, Deflection % (DEFL%). Integrate these in a similar way to the Dashboard and/or Matchup page

While I'm already working to compare an athlete's numbers to the league average (see next page), as suggested by Andrew McClatchey, I haven't thought about conveying it only in comparison to athlete's of the same position

# HIGH FIDELITY PROTOTYPES: EDITS



Change player image to Tristan Thompson

Consider whether to keep or eliminate "Auto Compare" button

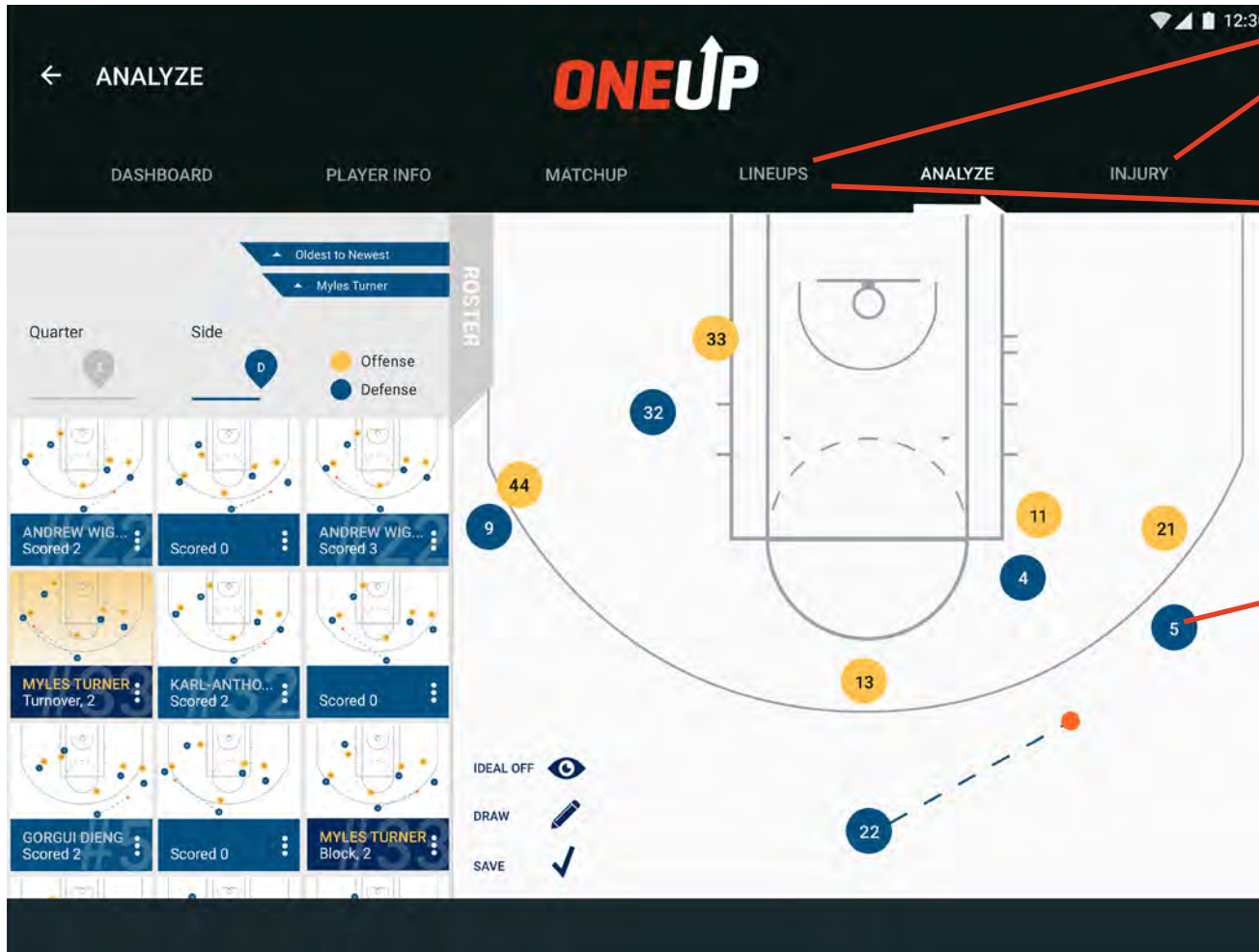
Convey that the coach has the ability to compare two players on his own team

Show zone chart on page that allows coaches to see %'s of shots made based on catch/shoot shots versus pull-up shots, show in way that you can compare two players' %'s

Include feature somewhere that allows coaches to compare players over different lengths of time (ex. over the past 6 games, or since a certain date)



# HIGH FIDELITY PROTOTYPES: EDITS



Start on "Lineups" & "Injury" pages

Include "Guards" and "Bigs" combos on "Lineups" page, show which 3 guards (perimeter players) play best together, and which 2 bigs (post players) play best together

Visually show how successful each defense has been over the course of a game, either on this page or the "Lineups" page