SUPPLEMENTARY REPORT
IS 247: USER EXPERIENCE DESIGN
GROUP 1: UNO
FALL 2021

Team Members: Alianna Panganiban, Madeline Miller, Jayson Acosta, Gaurav Sindhu, Isaiah Rodriguez, Matthew Barnes
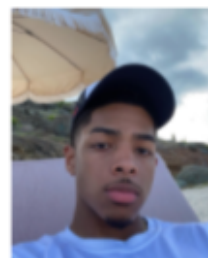
# TEAM MEMBERS

Alianna
Panganiban
amp9@njit.edu

Madeline Miller
mam357@njit.edu

Jayson
Acosta
jja53@njit.edu

Isaiah Rodriguez
ier2@njit.edu

Gaurav
Sindhu
gs426@njit.edu

Matthew J Barnes
mjb88@njit.edu

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Technology Audit
 Week 9 (10/27/21) [Version 1]
 Week 14 (12/08/21) [Final Version]
User Interface
 Week 11 (11/11/21) [Version 1]
 Week 12 (11/17/21) [Version 2]
 Week 13 (12/01/21) [Version 3]
 Week 14 (12/08/21) [Final Version]

## I. High Level Vision
### A. Root Concept Table
#### 1. Week 4 (09/22/2021) [Version 1]

| Component | Contributions to the root concept |
|-----------|-----------------------------------|
| High-level vision | Players can learn skills; share resources; |
| Basic Rationale | Can provide assistance to new skills for each scenario during ball play; database of variety of moves through image processing |
| Initial Target Market | University Students |
| Initial Use-Case | Players have access to mobile device and are able to access internet at any time of day; |

#### 2. Week 6 (10/06/2021) [Version 2]

| Component | Contributions to the root concept |
|-----------|-----------------------------------|
| High-level vision | Hoops will transform the way people share and record footage of their Basketball gameplay. Players currently have an ineffective way of recording and sharing. Using cloud technology and artificial intelligence to highlight key moments; Hoops will make the way players share / record their gameplay by correcting form.. |
| Basic Rationale | Key moments are captured and saved, determined through image processing and artificial intelligence. Key moments can then be shared amongst users in order to promote skill growth. |
| Initial Target Market | University Students who play recreational basketball |
| Initial Use-Case | Basketball; Players have access to mobile device and are able to access internet at any time of day. |

#### 3. Week 9 (10/27/21) [Version 3]

Team Members: Alianna Panganiban, Madeline Miller, Jayson Acosta, Gaurav Sindhu, Isaiah Rodriguez, Matthew Barnes

| Component | Contributions to the root concept |
|---|---|
| High-level vision | Hoops will transform the way people utilize technology to improve on their skill during basketball gameplay. Through shareable videos, pictures, and other collaborative tools it is possible to highlight key moments within the in game interactions of players. |
| Basic Rationale | With the utilization of smartphones, the internet, smart watches, and cameras. Through technological advancements such as image processing and artificial intelligence, key moments are able to be captured and saved onto a cloud database. |
| Initial Target Market | Students at NJIT that play basketball recreationally. |
| Initial Use-Case | Indoor Basketball Courts in NJIT Wellness and Events Center |

## 4. Week 14 (12/08/21) [Final Version]

| Component | Contributions to the root concept |
|---|---|
| High-level vision | Hoops will transform the way people play recreational basketball. By collaborating with interested players, they are able to capture their gameplay, share it, and receive critical feedback. In order to get creative with playmaking and advance on skill learning, key moments are highlighted and displayed with suggestions on how to improve |
| Basic Rationale | With the utilization of smartphones, the internet, smart watches and cameras, users are able to access Hoops. Through technological advancements such as image processing and artificial intelligence, key moments are able to be captured and saved onto a cloud database. |
| Initial Target Market | Students at college/university that play basketball recreationally. |
| Initial Use-Case | NJIT Basketball Courts (indoor) |

## II. Initial Deployment Environment
### A. Stakeholders
#### 1. Week 4 (09/22/21) [Version 1]
Internal Stakeholders

- Owners
    - The app to perform well.
- Employees
    - The app to perform well so they get paid.

External Stakeholders

- NJIT Students
- Manufacturers
- Sports Store Owners
- Staff for facilities with basketball courts

## 2. Week 6 (10/06/2021) [Version 2]

Internal Stakeholders

- Owners
    - The app to perform well.
- Employees
    - The app to perform well so they get paid.
- Initial investors

External Stakeholders

- NJIT Students
- NJIT faculty and officials
- Manufacturers
- Sports Store Owners
- Staff for facilities with basketball courts

## 3. Week 9 (10/27/21) [Version 3]

| Stakeholders | Impact |
|---|---|
| Students who play basketball | Download and use app through personal mobile device |
| NJIT Students | May be visible in recording of plays |
| NJIT Staff for facilities | Ask for consent for recording. Have to maintain courts during recreational hour that it is being used. |
| NJIT Security | Establish safety patrol over other students and faculty at the basketball court. |
| NJIT Administration | Possible investor. Can provide support. Liable for anything that happens on property. |

| Stakeholders | Impact |
|---|---|
| Spectators | Can offer to record footage for players |
| Local Sports Store Owners | Want to advertise more basketball products to amateur level players who need equipment. |

### 4. Week 14 (12/08/21) [Final Version]

| Stakeholders | Impact |
|---|---|
| Students who play basketball | Download and use app through personal mobile device |
| NJIT Students | May be visible in recording of plays |
| NJIT Staff for facilities | Ask for consent for recording. Have to maintain courts during recreational hour that it is being used. |
| NJIT Security | Establish safety patrol over other students and faculty at the basketball court. |
| NJIT Administration | Possible investor. Can provide support. Liable for anything that happens on property. |
| Spectators | Can offer to record footage for players |
| Local Sports Store Owners | Want to advertise more basketball products to amateur level players who need equipment. |

### B. Initial Target Demographic Breakdown
### 1. Week 4 (09/22/21) [Version 1]

III. NJIT Students
   A. Male
   B. Female
IV. Age range: 18-22
V. Students who play basketball recreationally
   A. Undergrad
   B. Grad
   C. Residents
   D. Commuters
   E. Not Professional play

F.  Beginner, Intermediate, Advanced (Non professional) skill levels

## 2. Week 14 (12/08/21) [Final Version]

- NJIT Students who play basketball recreationally
    - Male
    - Female
    - Undergrad
    - Grad
    - Residents
    - Commuters
    - Members of social clubs that have amateur level teams within club
- Age range: 16-18, 18-21, 21-30, 30+

## III. Problem Modeling

### A.  Personas
#### 1.  Week 4 (09/22/21) [Version 1]

**Real Persona**
**Name: Blake Adams**

**Background:**
**Age:** 20
**Role:** Mechanical Engineering
**Education:** NJIT
**Lives in:** Newark, New Jersey
**Mobile Device:** Iphone 13
**Height:** 5"7

**Main Points:**

- A student who is smart and tech savvy
- Has a mind for critical thinking and entrepreneurship
- Is not very confident.

Bio: Blake was always the smarter of his brothers, but he was always the one who was looked at second and it has made him extremely self-conscious about his appearance and felt little compared to his older brother. Blake wants to use Hoops to become better at Basketball to be seen physically for once and maybe help deal with his inferiority complex.

**Goals:**
- To be good at sports like his big brother
- To learn a sport to make up for his smaller appearance
- To be seen for his skill since he cannot fix his size

**Frustrations:**
- Not very good at sports
- Tends to give up when he doesn't get direct feedback
- Cannot run very fast or for very long periods of time

## Real Persona
### Name: Jennie Kim

**Goals:**
- To be more physically active
- Acquire a hobby in between college classes
- Be able to play in upcoming local 3v3 tournament

**Frustrations:**
- Little to no improvement in basketball skills
- Nothing to do in between class times
- No form of exercise

**Background:**
**Age:** 20
**Role:** Computer Science Major
**Education:** NJIT
**Lives in:** Newark, New Jersey
**Mobile Device:** iPhone 12 Max
**Height:** 5'4

Allie

**Main Points:**

- Dedicated in finishing school and obtaining degree
- Plays basketball with friends
- Is always on campus
- Wants to improve skill to participate in 3v3 tournament

Jennie is a student at NJIT who majors in Computer Science. She is a second year commuter and she is just getting used to the campus. Her schedule consists of a morning class and a long break in between every week day. She uses the open gym in the recreation center on campus with her friends to shoot around in between these classes.

She sees an instagram story post about a club that is hosting s 3v3 basketball tournament and she is interested, but doubts her skills and abilities. This is her only form of exercise while her day consists of completing work for her classes and driving back and forth from home to campus.

## Real Persona
### Name: Michael Simmons

**Background:**
Age: 19 years old
Role:
Education: Sophomore who transferred from Middlesex Community College to NJIT studying Information Technology
Lives In: Edison, NJ
Mobile Device: iPhone 12 Pro Max
Height: 5'10"

**Goals:**
- To utilize free time between classes
- Wants to find new friends with similar interests
- Learn to play a sport

**Frustrations:**
- Wants to improve in basketball but doesn't know where to start
- Oversleeping due to ample amount of free time
- Class slots were filled up so is only taking 12 credits

Main Points:

- First experience living on campus however does not have any friends.
- Naturally athletic
- Proficient in programming and computers
- Frequently watches the Brooklyn Nets play at the Barclays Arena
- Has lots of free time that is wasted sleeping

Bio:

Michael Simmons is a hardworking student who has recently transferred schools in his sophomore year. Previously in high school, Michael was active by playing intramural basketball and soccer. He has been naturally athletic growing up but chooses to prioritize his schoolwork. Unfortunately due to complications of transferring schools he was only able to take 12 credits. Realizing he has more free time than before, Michael is looking to meet new friends and try new activities; playing basketball or soccer is something he would like to pursue instead of oversleeping. He hopes to stop by the WEC and look for opportunities to prevent boredom.

Team Members: Alianna Panganiban, Madeline Miller, Jayson Acosta, Gaurav Sindhu, Isaiah Rodriguez, Matthew Barnes

## Real Persona: Justin Harris

**Goals:**
- Secure an internship this summer
- Improve physical fitness
- Improve basketball skills

**Frustrations:**
- Doesn't have many NJIT friends to play basketball with.
- Finding an indoor location to play basketball during the fall/winter months when it's too cold outside.

### Background:
**Age:** 19
**Education:** Junior at NJIT
**Lives in:** Morristown. NJ
**Mobile Device:** iPhone 12
**Height:** 5'10"

**Main Points**

- Played basketball in high school; still plays recreationally with friends in free time.
- Competitive in nature; enjoys playing several sports and working out.
- Enjoys new challenges both academically and physically.

**Bio**

Justin grew up in Morristown, NJ and played sports throughout most of his youth. As a kid, he dreamed of playing professionally. When not studying, Justin still attempts to fulfill his childhood wishes by playing basketball for fun with friends. But, Justin struggles to keep playing during the fall and winter months when it's too cold outside. He hopes to find fellow students at NJIT to play with, perhaps at the WEC.

Isaiah Rodriguez

## Real Persona Name: Emily Willson

Maddie

**Goals:**
- Spend more time outdoors with friends
- Learn a skill outside and unrelated to her major
- Find a way to destress

**Frustrations:**
- Spends most of her time doing homework, which consists of reading online
- Preparing to go to law school
- Does not know how to spend the free time she does have

### Background:
**Age:** 20
**Role:** Law Student
**Education:** Sophomore Law, Technology, and Culture student at NJIT
**Lives in:** Long Branch, NJ
**Mobile Device:** iPhone 12 Pro
**Height:** 5'7"

Main Points

- Is open minded to trying new things
- Wants to meet new people outside her major
- Competitive in anything she does

Emily is a Law, Technology, and Culture student at NJIT. She is a sophomore who spends the majority of her time doing reading homework and prepping for law school. She loves trying new activities and is a very competitive person. Emily would love to find a new hobby at NJIT that would allow her to take time to destress from her hectic schedule, as well as meet new people outside of her major.

2. **Week 9 (10/27/21) [Version 2]**

Team Members: Alianna Panganiban, Madeline Miller, Jayson Acosta, Gaurav Sindhu, Isaiah Rodriguez, Matthew Barnes

## Lucas Munoz

"Computer Science is the operating system for all innovation"

| Background: | Main Points: |
|---|---|
| **Age:** 20 <br> **Role:** Computer Science Student <br> **Education:** New Jersey Institute of Technology <br> **Lives in:** Newark, New Jersey <br> **Mobile Device:** iPhone 12 <br> **Height:** 5'11 | • Dedicated Computer Science student <br> • Avid pickup basketball player |

### Goals

- Land an internship at a reputable tech company
- Improve his basketball skills to increase his value as a player

### Frustrations

- Spends a majority of his time studying and completing school assignments
- Little to no time to improve his basketball skills

Lucas Muñoz is a 20 year old, third year computer science student that attends NJIT. He loves programming and spends a majority of his time improving his coding skills and learning new things. He also loves playing pickup basketball games with randoms and with friends. He also loves meeting up with a group of people to watch NBA basketball since he has a Brooklyn Nets fan. However, he wishes that he could improve his basketball skills, specifically shooting. If he could nail that down then he'd be the first one to get picked when playing a pickup game.

## Blake Adams

"Once you start seeing your potential the grind becomes addictive"

| Background: | Main Points: |
|---|---|
| **Age:** 20 <br> **Role:** Mechanical Engineering <br> **Education:** NJIT <br> **Lives in:** Newark, New Jersey <br> **Mobile Device:** Iphone 13 <br> **Height:** 5"7 | • A student who is smart and tech savvy <br> • Has a mind for critical thinking and entrepreneurship <br> • Is not very confident. <br> • A part of eboard of student senate |

### Goals

- To be good at sports like his big brother
- To learn a sport to make up for his smaller appearance
- To be seen for his skill since he cannot fix his size

### Frustrations

- Not very good at sports
- Tends to give up when he doesn't get direct feedback
- Cannot run very fast or for very long periods of time

Blake was always the smarter of his brothers, but he was always the one who was looked at second and it has made him extremely self-conscious about his appearance and felt little compared to his older brother. His older brother and him used to play basketball for a AAU team during elementary school, but he stopped while his brother continued on to the travel team. Blake wants to become better at Basketball to be seen physically for once and maybe help deal with his inferiority complex.

## Jennie Kim

"Life is what we can't expect, we can't just live with probability"

**Background:**

**Age:** 20
**Role:** Computer Science Major
**Education:** NJIT
**Lives in:** Piscataway, New Jersey
**Mobile Device:** iPhone 12 Max
**Height:** 5'4

**Main Points:**

- Dedicated in finishing school and obtaining degree
- Plays basketball with friends
- Is always on campus
- Wants to improve skill to participate in 3v3 tournament

### Goals

- To be more physically active
- Acquire a hobby in between college classes
- Be able to play in upcoming local 3v3 tournament

### Frustrations

- Little to no improvement in basketball skills
- Nothing to do in between class times
- Dislikes commuting because of traffic and time wasted

Jennie is a student at NJIT who majors in Computer Science. She is a second year commuter and she is just getting used to the campus. Her schedule consists of a morning class and a long break in between every week day. She uses the open gym in the recreation center on campus with her friends to shoot around in between these classes. She sees an instagram story post about a club that is hosting s 3v3 basketball tournament and she is interested, but doubts her skills and abilities. This is her only form of exercise while her day consists of completing work for her classes and driving back and forth from home to campus.

## Justin Harris

"If you can dream it, you can do it."

**Background:**

**Age**: 19
**Education**: Junior CS Major at NJIT
**Lives in**: Morristown. NJ
**Mobile Device**: iPhone 12
**Height**: 6'4"

**Main Points:**
- Played basketball in high school; still plays recreationally with friends in free time.
- Competitive in nature; enjoys playing several sports and working out.
- Enjoys new challenges both academically and physically.

### Goals

- Secure an internship this summer
- Improve physical fitness
- Improve basketball skills

### Frustrations

- Finding an indoor location to play basketball during the fall/winter months when it's too cold outside.
- Balancing school and social life

Justin is a junior at NJIT studying Computer Science. Justin has always had a love for programming and admires the challenge found in coding. Outside of programming, one of his favorite hobbies is basketball. Justin grew up in Morristown, NJ and played sports throughout most of his youth. As a kid, he dreamed of playing professionally. Justin describes himself as a perfectionist which often results in somewhat of an unhealthy competitive spirit. In senior year of high school, Justin was suspended from his basketball team after starting a fight with one of his teammates during practice. Currently, Justin still attempts to fulfill his childhood wishes by playing basketball for fun with friends. On Tuesday's after a long day of class, Justin usually heads to the WEC basketball courts to unwind and perfect his skills. In the future, he hopes to find fellow students at NJIT to play with.

| | **Emily Wilson** | |
|---|---|---|
|  | "If we desire respect for the law, we must first make the law respectable" | |
| | **Background:**<br><br>**Age:** 20<br>**Role:** Law Student<br>**Education:** Sophomore Law, Technology, and Culture student at NJIT<br>**Lives in:** Long Branch, NJ<br>**Mobile Device:** iPhone 12 Pro<br>Height: 5'7" | **Main Points:**<br><br>● Is open minded to trying new things<br>● Wants to meet new people outside her major<br>● Competitive in anything she does |

| **Goals** | |
|---|---|
| ● Spend more time outdoors with friends<br>● Learn a skill outside and unrelated to her major<br>● Find a way to destress | Emily is majoring in Law, Technology, and Culture student at NJIT. She is a sophomore who spends the majority of her time doing reading homework and prepping for law school. Emily can be considered antisocial, as she does not put herself out there to interact with her peers and make friends, supporting the fact that she does not have many. She has decided that she wants to have the best college experience she can, so she decides to use Hoops to contact other basketball players on campus to keep up with her skills and put herself out there to make new friends. She hopes to put herself outside her comfort zone and make new friends. |
| **Frustrations** | |
| ● Spends most of her time doing homework, which consists of reading online<br>● Preparing to go to law school<br>● Does not know how to spend the free time she does have | |

| | **Michael Simmons** | |
|---|---|---|
|  | "If we desire respect for the law, we must first make the law respectable" | |
| | **Background:**<br><br>Age: 19 years old<br>Role:<br>Education: Sophomore who transferred from Middlesex Community College to NJIT studying Information Technology<br>Lives In: Edison, NJ<br>Mobile Device: iPhone 12 Pro Max<br>Height: 5'10" | **Main Points:**<br><br>● First experience living on campus however does not have any friends.<br>● Naturally athletic<br>● Proficient in programming and computers<br>● Frequently watches the Brooklyn Nets play at the Barclays Arena<br>● Has lots of free time that is wasted sleeping<br>● President of student council |

| **Goals** | |
|---|---|
| ● To utilize free time between classes<br>● Wants to find new friends with similar interests<br>● Learn to play a sport | Michael Simmons is a hardworking student who has recently transferred schools in his sophomore year. Previously in high school, Michael was active by playing intramural basketball and soccer. He has been naturally athletic growing up but chooses to prioritize his schoolwork. Unfortunately due to complications of transferring schools he was only able to take 12 credits. Realizing he has more free time than before, Michael is looking to meet new friends and try new activities; playing basketball is something he would like to pursue instead of oversleeping. He hopes to stop by the WEC and look for opportunities to prevent boredom. |
| **Frustrations** | |
| ● Wants to improve in basketball but doesn't know where to start<br>● Oversleeping due to ample amount of free time<br>● Class slots were filled up so is only taking 12 credits | |

## 3. Week 14 (12/08/21) [Final Version]

## Lucas Munoz

"Computer Science is the operating system for all innovation"

**Background:**

**Age:** 20
**Role:** Computer Science Student
**Education:** New Jersey Institute of Technology
**Lives in:** Newark, New Jersey
**Mobile Device:** iPhone 12
**Height:** 5'11

**Main Points:**

- Dedicated Computer Science student
- Very motivated to be the best he can be at anything he tries

### Goals

- Land an internship at a reputable tech company
- Become an overall well rounded person

### Frustrations

- Spends a majority of his time studying and completing school assignments
- Little time to learn new things

Lucas Muñoz is a 20 year old computer science student attending his third year at NJIT. Lucas tends to lean more towards being an introvert which helps the fact that he loves programming. If he isn't studying or working on his school assignments, he's either refining his programming skills, learning something new, watching a sports game, or hanging out with his closest friends. Lucas has never been the athletic type but never hesitates to play a few games of any sport if he is invited out to play. Once he sees that he likes something, he'll fixate himself on that for a while and really try to improve at it.

## Blake Adams

"Once you start seeing your potential the grind becomes addictive"

**Background:**

**Age:** 20
**Role:** Mechanical Engineering
**Education:** NJIT
**Lives in:** Newark, New Jersey
**Mobile Device:** Iphone 13
**Height:** 5"7

**Main Points:**

- A student who is smart and tech savvy
- Has a mind for critical thinking and entrepreneurship
- Is not very confident.
- A part of eboard of student senate

### Goals

- To be good at sports like his big brother
- To learn a sport to make up for his smaller appearance
- To be seen for his skill since he cannot fix his size

### Frustrations

- Not very good at sports
- Tends to give up when he doesn't get direct feedback
- Cannot run very fast or for very long periods of time

Blake was always the smarter of his brothers, but he was always the one who was looked at second and it has made him extremely self-conscious about his appearance and felt little compared to his older brother. His older brother and him used to play basketball for a AAU team during elementary school, but he stopped while his brother continued on to the travel team. Blake wants to become better at Basketball to be seen physically for once and maybe help deal with his inferiority complex.

## Jennie Kim

"Life is what we can't expect, we can't just live with probability"

| Background: | Main Points: |
|---|---|
| **Age:** 20<br>**Role:** Computer Science Major<br>**Education:** NJIT<br>**Lives in:** Piscataway, New Jersey<br>**Mobile Device:** iPhone 12 Max<br>**Height:** 5'4 | • Dedicated in finishing school and obtaining degree<br>• Plays basketball with friends<br>• Is always on campus<br>• Wants to improve skill to participate in 3v3 tournament |

### Goals

- To be more physically active
- Acquire a hobby in between college classes
- Be able to win in upcoming local 3v3 tournament for money prize

### Frustrations

- Little to no improvement in basketball skills
- Nothing to do in between class times
- Dislikes commuting because of traffic and time wasted

Jennie is a student at NJIT who majors in Computer Science. She is a second year commuter and she is just getting used to the campus. Her schedule consists of a morning and night classes and a long break in between every week day. She uses the open gym in the recreation center on campus with her friends to shoot around in between these classes. She sees an instagram story post about a club that is hosting s 3v3 basketball tournament and she is interested to win the top prize, but doubts her skills and abilities. This is her only form of exercise while her day consists of completing work for her classes and driving back and forth from home to campus.

## Justin Harris

"If you can dream it, you can do it."

| Background: | Main Points: |
|---|---|
| **Age**: 19<br>**Education**: Junior CS Major at NJIT<br>**Lives in**: Morristown. NJ<br>**Mobile Device**: iPhone 12<br>**Height**: 6'4" | • Played basketball in high school; still plays recreationally with friends in free time.<br>• Competitive in nature; enjoys playing several sports and working out.<br>• Enjoys new challenges both academically and physically. |

### Goals

- Secure an internship this summer
- Improve physical fitness
- Improve basketball skills

### Frustrations

- Finding an indoor location to play basketball during the fall/winter months when it's too cold outside.
- Balancing school and social life

Justin is a junior at NJIT studying Computer Science. Justin has always had a love for programming and admires the challenge found in coding. Outside of programming, one of his favorite hobbies is basketball. Justin grew up in Morristown, NJ and played sports throughout most of his youth. As a kid, he dreamed of playing professionally. Justin describes himself as a perfectionist which often results in somewhat of an unhealthy competitive spirit. In senior year of high school, Justin was suspended from his basketball team after starting a fight with one of his teammates during practice. Currently, Justin still attempts to fulfill his childhood wishes by playing basketball for fun with friends. On Tuesday's after a long day of class, Justin usually heads to the WEC basketball courts to unwind and perfect his skills. In the future, he hopes to find fellow students at NJIT to play with.

## Emily Wilson

"If we desire respect for the law, we must first make the law respectable"

| Background: | Main Points: |
|---|---|
| **Age:** 20<br>**Role:** Law Student<br>**Education:** Sophomore Law, Technology, and Culture student at NJIT<br>**Lives in:** Long Branch, NJ<br>**Mobile Device:** iPhone 12 Pro<br>Height: 5'7" | • Is open minded to trying new things<br>• Wants to meet new people outside her major<br>• Competitive in anything she does |

### Goals

- Spend more time outdoors with friends
- Learn a skill outside and unrelated to her major
- Find a way to destress

### Frustrations

- Spends most of her time doing homework, which consists of reading online
- Preparing to go to law school
- Does not know how to spend the free time she does have

Emily is majoring in Law, Technology, and Culture student at NJIT. She is a sophomore who spends the majority of her time doing reading homework and prepping for law school. Emily can be considered antisocial, as she does not put herself out there to interact with her peers and make friends, supporting the fact that she does not have many. Most of her time is spent in the library doing research for her various law classes, however she does have free time towards the end of the week. Emily was a member of the debate team in high school and is a very competitive person, who enjoys starting arguments. She always likes the win the arguments she starts, which fuels her love for competition

## Michael Simmons

"If we desire respect for the law, we must first make the law respectable"

| Background: | Main Points: |
|---|---|
| Age: 19 years old<br>Role:<br>Education: Sophomore who transferred from Middlesex Community College to NJIT studying Information Technology<br>Lives In: Edison, NJ<br>Mobile Device: iPhone 12 Pro Max<br>Height: 5'10" | • First experience living on campus however does not have any friends.<br>• Naturally athletic<br>• Proficient in programming and computers<br>• Frequently watches the Brooklyn Nets play at the Barclays Arena<br>• Has lots of free time that is wasted sleeping<br>• President of student council |

### Goals

- To utilize free time between classes
- Wants to find new friends with similar interests
- Learn to play a sport

### Frustrations

- Wants to improve in basketball but doesn't know where to start
- Oversleeping due to ample amount of free time
- Class slots were filled up so is only taking 12 credits

Michael Simmons is a hardworking student who has recently transferred schools in his sophomore year. Previously in high school, Michael was active by playing intramural basketball and soccer. He has been naturally athletic growing up but chooses to prioritize his schoolwork. Unfortunately due to complications of transferring schools he was only able to take 12 credits. Realizing he has more free time than before, Michael is looking to meet new friends and try new activities; playing basketball is something he would like to pursue instead of oversleeping. He hopes to stop by the WEC and look for opportunities to prevent boredom.

## B. Problem Scenario

### 1. Week 6 (10/06/21) [Version 1]

**1**

Justin prepares to exit his last class of the day at Tiernan Hall which ends at 4pm. He brought his gym bag to class so he could go directly to the WEC.



**2**

Justin arrives at the WEC immediately after class at 4:10 pm. He proceeds to change in the locker rooms and then enters the courts. He scans the area to see if he recognizes anyone he knows.



Team Members: Alianna Panganiban, Madeline Miller, Jayson Acosta, Gaurav Sindhu, Isaiah Rodriguez, Matthew Barnes

**3**

Justin notices a few of his friends shooting around, however, recently he's been pretty serious about improving his 3 pointers. He grabs his phone out of his pocket and walks towards the corner of the court to set it up so he can record his shots.



**4**

Justin unracks a basketball and starts practicing his 3 pointers for about 30 minutes. At around 4:40 pm Justin stops practicing his 3 pointers and plays a game with some friends that lasts around 20 minutes. At 5:00 pm Justin heads back into the locker room and after changing leaves the WEC and walks back toward his dorm.



Team Members: Alianna Panganiban, Madeline Miller, Jayson Acosta, Gaurav Sindhu, Isaiah Rodriguez, Matthew Barnes

**5**

Once in his room, Justin takes out his phone and goes over the footage he recorded that day. Out of the 25 minutes of footage he recorded, only about 5 minutes of footage is usable. The rest is full of other people walking in front of his camera or poor angles of him shooting.



## 2. Week 9 (10/27/21) [Version 2]

The open gym hours (5pm-11pm) at the basketball courts in the NJIT Wellness and Events Center are usually packed with students who have time in between their classes to get a workout in. There are two courts that are alongside each other where on the left side, the main hoops are used for a pick up game, then on the right, one would find students of all skill levels shooting around. On the pickup game side of the court, Lucas Munoz is on the side putting on his sneakers. He is a Computer Science Major, who started going to the WEC ever since his freshman year of college two years ago and would usually join solo in the pickup games and have gained quite a reputation from the usual crowd. A couple of feet from him was Blake Adams and Michael Simmons who just came from the Guttenberg Information Technologies Center where they were completing a group project for the class that they are both in. Blake has some experience with basketball during his childhood as he played for an AAU and travel team. Michael had a lot of time on his hands so he decided to join before he had his commute back home to Edison, New Jersey. Emily Wilson came from her dorm in the honors hall holding a basketball that her dad gave to her in the beginning of the semester.  Emily prefers to dedicate herself to the books rather than to branch out, but she knew that would only lead to disaster so she decided to pick up Basketball in the hopes that she would meet people. Justin Harris asks to join if they were going to play a game. He just came right after his work study job at the advising office for the Ying Wu College of Computing. Ten minutes later the door opens as Jennie Kim enters through it. Because there were traffic delays on her commute from home to campus, she arrived later than she and Emily originally planned beforehand. During that session around **5:15 pm,** they decide to play a 3v3 game to assess their individual skill. It was Jennie, Lucas, and Justin versus Michael, Blake, and Emily. Emily decides to utilize her mobile device to take the recording of the groups activity so she propped it up on the ground against her backpack to get a wide angle view of the halfcourt they were playing on. Lucas decides to take the lead as the point guard starting after every check up. As he is being defended, he bounce passes the ball towards the middle of his teammate, Justin who attempts to shoot in the basket. Without hesitation, he chucks the ball up and Michael comes out of nowhere to block it in midair. Michael's team retrieves the turnover and Emily ends up with the ball in her hands then makes an easy layup in. The group ended up playing for another hour

and a half until whoever the first team was to score 21 points. They lost track of time until they realized that there were no more people in the gym. It was already **6:30pm** and Justin was late to his 6-9 for his CS class so he said goodbye then ran off with his things towards the exit of the Wellness and Fitness Center before everyone else.

The group decides to meet at **5pm on Friday again**, for the third time but this time they agreed to set an alarm to keep track of how much time has passed since they arrived at the gym. This time they decide to play 2v2s king of the court. One team is on offense, another on defense and the first team to score stays on while the other switches with the team that didn't play that previous round. They began to split up into pairs they thought would be best based on their skill level, Lucas and Emily, Jennie and Justin, Michael and Blake. The first round was Lucas and Emily (offense) versus Jennie and Justin(defense). After the check up, Lucas passes the ball to Jennie who was located on the right wing. As Jennie is on defense against Emily with the ball, Lucas cuts through in between her and Justin to get himself as an available option in the paint. Emily sees the opportunity for an open pass and takes it. Lucas gets the ball and scores a layup over Justin. Jennie and Justin give each other an encouraging exchange of words and a high five as they step off and Michael and Blake hop in.

It is **5:15 pm** and the second round begins, as Emily takes the point guard position and checks it with Blake. Lucas begins to post up with Michael on his back. Emily attempts to pass it to him, but all of a sudden Blake tips the pass and receives the steal. Michael gets in front of Lucas in the paint so Blake bounce passes it to Michael. He gets the open bucket and Justin and Jennie switch off with the spectating team. The group continues to play until Jennie and Justin end up with a surprising victory.

**5:50pm:** Michael calls out the advantage that Justin has on being the tallest member of the group with the longest wingspan. They all laugh about the comment and as Justin was checking his notifications on his phone, he exclaimed in excitement that his 6-9 class was cancelled last minute. They all are available for the rest of the night so they decide to go out for dinner at Buffalo Wild Wings. It was perfect timing because during dinner they got to watch the NBA preseason game against the Brooklyn Nets (Lucas's favorite team) and the Memphis Grizzlies.

That weekend Jennie sent an image in the chat of a screenshot from the NJIT Basketball Club instagram story. It included information about team registration for a 5v5 play in a tournament that was gonna happen a month from then. Emily reacts to the message with a heart and suggests that they should all participate. The guys all replied back to the message with ideas for their team name and uniform colors. They all agreed to start practicing twice a week

That next **Wednesday at 2:30pm,** the gym was packed with people who were assumably practicing for the play in tournament as well. The group decided to verse another team for a full court scrimmage on one court. They decided to rotate substitutions in so Blake decided to stretch first so he sat out for the first

game. Emily, Lucas, Justin, Jennie, and Michael

### 3. Week 14 (12/08/21) [Final Version]

# StoryBoard

The open gym hours (5pm-11pm) at the basketball courts in the NJIT Wellness and Events Center are usually packed with students who have time in between their classes to get a workout in. On the pickup game side of the court, Lucas Munoz is on the side putting on his sneakers.

Emily Wilson came from her dorm in the honors hall holding a basketball that her dad gave to her in the beginning of the semester. Justin Harris asks to join if they were going to play a game. Ten minutes later the door opens as Jennie Kim enters through it, she arrived later than she and Emily originally planned beforehand.

During that session around 5:15 pm, they decide to play a 3v3 game to assess their individual skill. It was Jennie, Lucas, and Justin versus Michael, Blake, and Emily.



Create your own at Storyboard That

Emily decides to utilize her mobile device to take the recording of the groups activity so she propped it up on the ground against her backpack to get a wide angle view of the halfcourt they were playing on.

Lucas decides to take the lead as the point guard starting after every check up. As he is being defended, he bounce passes the ball towards the middle of his teammate, Justin who attempts to shoot in the basket.

Without hesitation, he chucks the ball up and Michael comes out of nowhere to block it in midair. Michael's team retrieves the turnover and Emily ends up with the ball in her hands then makes an easy layup in.



Create your own at Storyboard That

Team Members: Alianna Panganiban, Madeline Miller, Jayson Acosta, Gaurav Sindhu, Isaiah Rodriguez, Matthew Barnes

The group ended up playing for another hour and a half until whoever the first team was to score 21 points. They lost track of time until they realized that there were no more people in the gym.

It was already 6:30pm and Justin realized what time it was so he said goodbye then ran off with his things towards the exit of the Wellness and Fitness Center before everyone else.

He was late to his 6-9 for his CS class so ran across campus to get to the GITC where his class was located.



Create your own at Storyboard That

At the WEC that following week they play King of the Court 2v2s while one team sits out for a round.

Justin passes the ball to Emily and cuts through the defenders. He scores a basket which means that his team won the round

The defending team, Justin and Jennie cheer each other up with high fives as they step off the court and the new team is on against the winners of the previous round.



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After they finished the game and started packing up to go home, Justin was checking his notifications on his phone, he exclaimed in excitement that his 6-9 class was cancelled last minute.

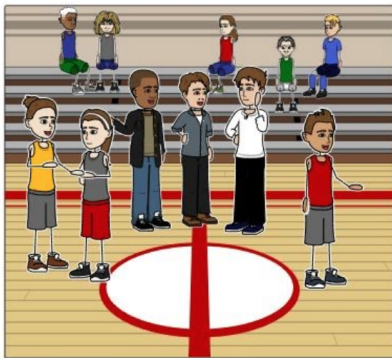They all are available for the rest of the night so they decide to go out for dinner at Buffalo Wild Wings. It was perfect timing because during dinner they got to watch the NBA preseason game against the Brooklyn Nets

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**28 DEC | BASKETBALL TOURNAMENT | 11 AM**

That next **Wednesday at 2:30pm,** the gym was packed with people who were assumably practicing for the play in tournament as well.

The group decided to verse another team for a full court scrimmage on one court. Blake decided to take out his phone and record as he sat out for the first game. Emily, Lucas, Justin, Jennie, and Michael are on defense first.

**Around 5pm outside of the gym,** the team was seated outside going through the recordings saved on Blake's phone. They recall the play that everyone was excited about, but it was taking Blake too long to find.



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started going to the WEC ever since his freshman year of college two years ago and would usually join solo in the pickup games and have gained quite a reputation from the usual crowd. A couple of feet from him was Blake Adams and Michael Simmons who just came from the Guttenberg Information Technologies Center where they were completing a group project for the class that they are both in. Blake has some experience with basketball during his childhood as he played for an AAU and travel team. Michael had a lot of time on his hands so he decided to join before he had his commute back home to Edison, New Jersey. Emily Wilson came from her dorm in the honors hall holding a basketball that her dad gave to her in the beginning of the semester.  Emily prefers to dedicate herself to the books rather than to branch out, but she knew that would only lead to disaster so she decided to pick up Basketball in the hopes that she would meet people. Justin Harris asks to join if they were going to play a game. He just came right after his work study job at the advising office for the Ying Wu College of Computing. Ten minutes later the door opens as Jennie Kim enters through it. Because there were traffic delays on her commute from home to campus, she arrived later than she and Emily originally planned beforehand.

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Emily sees the opportunity for an open pass and takes it. Lucas gets the ball and scores a layup over Justin. Jennie and Justin give each other an encouraging exchange of words and a high five as they step off and Michael and Blake hop in.

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**2:50pm:** During their intense game up till 21, one play that the team made stuck out that everyone else in the gym at the time was going crazy. Lucas blocked the ball from the opposing team's attempt to score then passed the ball to Emily, who did an around the back move successfully and pocket passed it to Jennie that scored a three from the wing.

**Around 5pm outside of the gym,** the team was seated outside going through the recordings saved on Blake's phone. They recall the play that everyone was excited about and told Blake to find which hour long video it was recorded on. After many

attempts of skimming through the videos trying to look for that one clip, Blake was frustrated and said that it was taking too long and he would look for it later when he arrived home

### C. Claims Analysis

1. **Week 7 (10/20/21) [Version 1]**

| |
|---|
| Title: Michael ran at full speed in order to block Justin when he attempted to score the basket. |
| Description: During their 3v3 play, Justin chucks the ball up and Michael comes out of nowhere to block it in midair. Michael's team retrieves the turnover and Emily ends up with the ball in her hands then makes an easy layup in. |
| Pros:<br>● The group has an idea of Michael's skill level in jumping<br>● Can ask Michael the proper timing and position when on defense<br>Cons:<br>● Bad for the offensive team because they receive an additional turnover |

| |
|---|
| Title: Emily props up her phone against her backpack in order to get a wide angle view of the court that they are playing on. |
| Description: Without a tripod, Emily attempts to film all six of them in one shot during their king of the court play. She has multiple videos consisting of long recordings of their gameplay. |
| Pros:<br>● They are all present in one single footage<br>● Can analyze on what to improve<br>Cons:<br>● Poor shot angle<br>● Too much storage taken up on camera roll<br>● No highlights of key moments of importance. |

2. **Week 9 (10/27/21) [Version 2]**

| Title: Michael ran at full speed in order to block Justin when he attempted to score the basket. |
|---|
| Description: During their 3v3 play, Justin chucks the ball up and Michael comes out of nowhere to block it in midair. Michael's team retrieves the turnover and Emily ends up with the ball in her hands then makes an easy layup in. |
| Pros:<br>  ● The group has an idea of Michael's skill level in jumping<br>  ● Can ask Michael the proper timing and position when on defense<br>Cons:<br>  ● Bad for the offensive team because they receive an additional turnover |

| Title: Player keeps calling timeout to check if footage is still recording |
|---|
| Description: Emily checks on her phone that she set up on her backpack. |
| Pros:<br>  ● Make sure the recording is still on<br>  ● Everyone is still in the frame. Good angles.<br>Cons:<br>  ● Wasting playing time during the game<br>  ● Extra work for videographer of the group |

| Title: Player defends the ball in the paint |
|---|
| Description:  During King of The Court, Lucas receives the ball then posts up in front of Michael in the paint. Michael gets the steal by anticipating Emily's pass towards Lucas's weak side. |
| Pros:<br>  ● Michael suggests some interior defensive advice such as sealing the defender in the paint<br>Cons:<br>  ● Lucas's team misses the opportunity to win that round |

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|  |
| --- |
| ● Misses the opportunity to attempt to finish a basket |

       3. **Week 14 (12/08/21) [Final Version]**

| |
| --- |
| Title: Losing your defender allows for open jump shots or layups |
| Description: Justin and Michael are playing 3 on 3 at the WEC when Justin crosses Michael with a side to side dribble move leaving Michael on the floor. |
| Pros: <br> ● Advantage for offensive team giving open shot selection <br> ● Visually able to see brief footage of positive feedback of cross over <br> Cons: <br> ● Understand basic defensive fundamentals |

**D. Point of Intervention**
    1. **Week 14 (12/08/21) [Version 1]**
Jumpshot Form:

       Justin performs an exceptional play by breaking Michaels ankles with a crossover allowing him a wide open jump shot. However, Justin misses the mid-range jumper. In this situation, Hoops will analyze the possession flagging the ankle-breaker and the missed jumpshot. Positive feedback will be provided for the ankle breaker however, hoops will flag the missed jump shot for the user to see any corrections needed in form, location of jumpshot, and store the brief video footage in the "shooting" category of the app. In addition, smartwatches, drones and wearable sensors are all pieces of technology that can enhance feedback from Hoops to users. In the case Justin was looking improve his jump shot even further, he is able to connect his Apple Watch through Hoops. This will give additional feedback on follow-through form and height of shot released.

    2. **Week 15 (12/15/21) [Final Version]**

Jumpshot Form:

       Justin performs an exceptional play by breaking Michaels ankles with a crossover allowing him a wide open jump shot. However, Justin misses the mid-range jumper. In this situation, Hoops will analyze the possession flagging the ankle-breaker and the missed jumpshot. Positive feedback will be provided for the ankle breaker
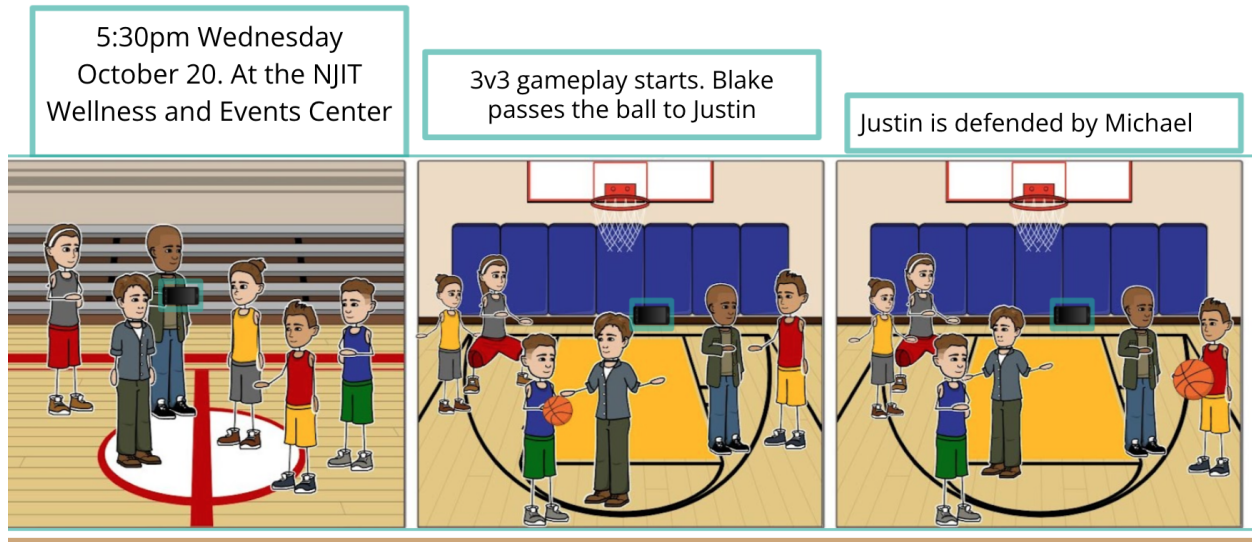
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**IV. Proposed Solutions**

    **A. Activity Scenario**

        **1.** Week 9 (10/27/21) [Version 1]



## Activity Scenario

5:30pm Wednesday October 20. At the NJIT Wellness and Events Center

3v3 gameplay starts. Blake passes the ball to Justin

Justin is defended by Michael

2. Week 11 (11/12/21) [Version 2]

# Activity Scenario Storyboard

Its **2:30** and Blake is done with classes for the day. Blake sits in his room scrolling through his instagram feed full of NBA season start off highlights until he runs into an advertisement about an application called "Hoops".

Emily meets Blake at WEC after class. Blake tells Emily to create an account with Hoops so she can utilize her apple watch through Hoops.

Blake and Emily at first played 1 on 1 until they were invited by other students to play full court. Because, the other players were much bigger than Emily, she relied on shooting the ball rather than taking layups.



After Blake and Emily finish playing for the day, they decide to head to the Central King Building in a Study lounge and invited their friends to review feedback from Hoops to get ready for their play in tournament. They were able to watch utilizing the study lounge tv through Hoops using apple play connectivity.

One of the apps features provides compared gameplay footage with similar play scenario done by a professional basketball player in highlight clips from an official NBA game.

The next day, Lucas and Jennie are free to join Blake and Emily at the WEC. They arrived at the WEC at 3:00 pm to see Emily and Blake playing one on one.



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He then proceeds to check the ball to Jennie to initiate the game. Lucas firmly believes he can post up Jennie in the paint for an easy layup. As Lucas has his back towards Jennie while dribbling the ball, Jennie steals the ball from Lucas due to improper footwork.

Lucas and Jennie wrap up their game along with Blake and Emily, then gather their phones and backpacks to get Taco Bell at Campus Center.

Lucas heads home from campus and on the busride and sees that Hoops highlights the position of his legs which can be seen as off balanced when he is trying to post-up a player. Hoops is able to identify when Lucas is on the court and trims excess video allowing to view the content easier.



### 3. Week 14 (12/08/21) [Version Final]



# Activity Scenario Storyboard

Its **2:30** and Blake is done with classes for the day. Blake sits in his room scrolling through his instagram feed full of NBA season start off highlights until he runs into an advertisement about an application called "Hoops".

Emily meets Blake at WEC after class. Blake tells Emily to create an account on Hoops so she can utilize her apple watch through Hoops.

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**B. Technology Audit**

   1.  **Week 9 (10/27/21) [Version 1]**

Smartphone

 ● iPhone and android users can record themselves shooting a basketball without interruptions. With the aid of AI technology, video photoage will be trimmed automatically for the user to view key highlights.

Smart Watch/Apple Watch

 ● Utilizing the app on a smartwatch sends feedback to the users phone
   ○ Information regarding the users shot release

Drones

 ● Eliminates the issue of poor angles
   ○ Aerial view of user to better capture angles of footwork and shot release

Wearable sensors

 ● Connects the team members through bluetooth connectivity along with a sensor built in within the basketball itself that is tracked.
   2.  **Week 14 (12/08/21) [Final Version]**



# Technology Audit

Smartphone

 ● iPhone and android users can record themselves shooting a basketball without interruptions. With the aid of AI technology, video photoage will be trimmed automatically for the user to view key highlights.

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 ● Utilizing the app on a smartwatch sends feedback to the users phone
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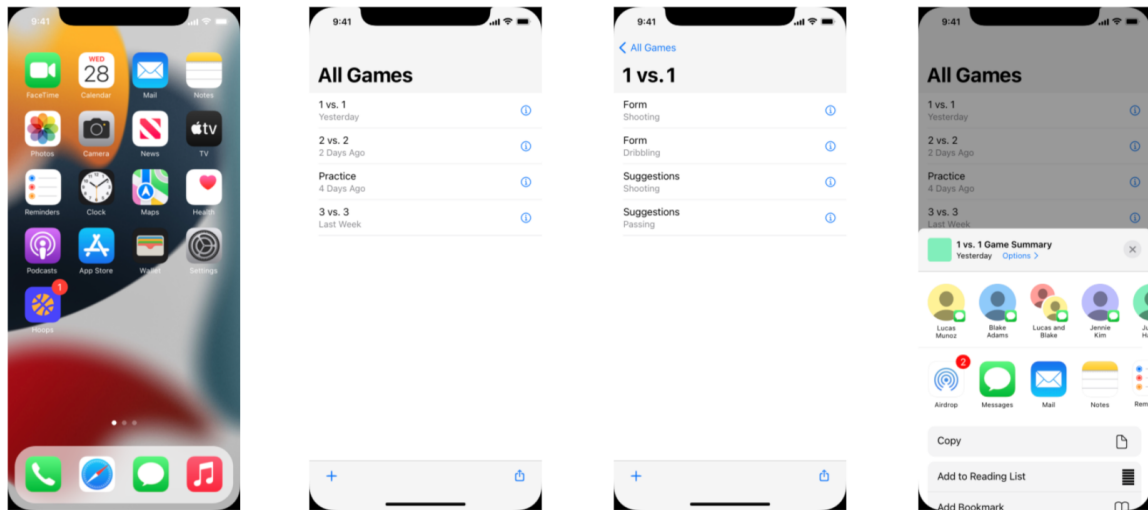


**C. User Interface**
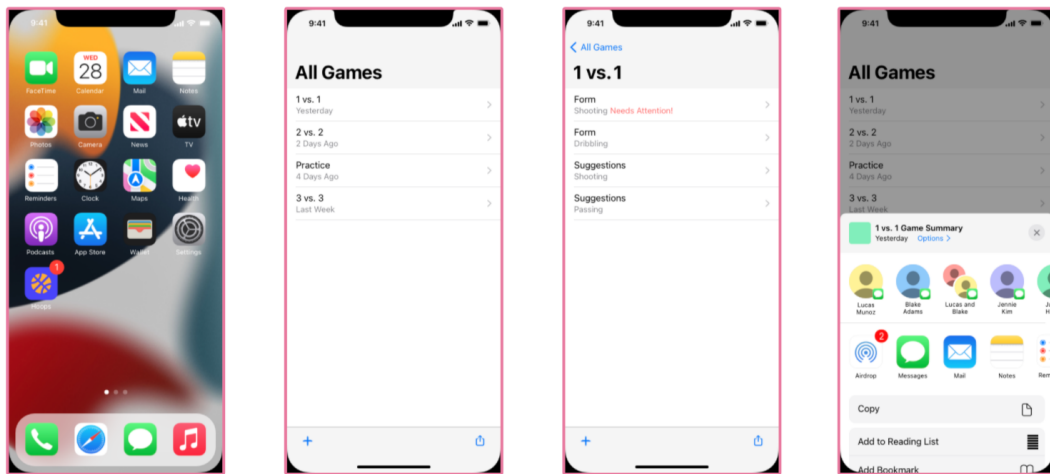
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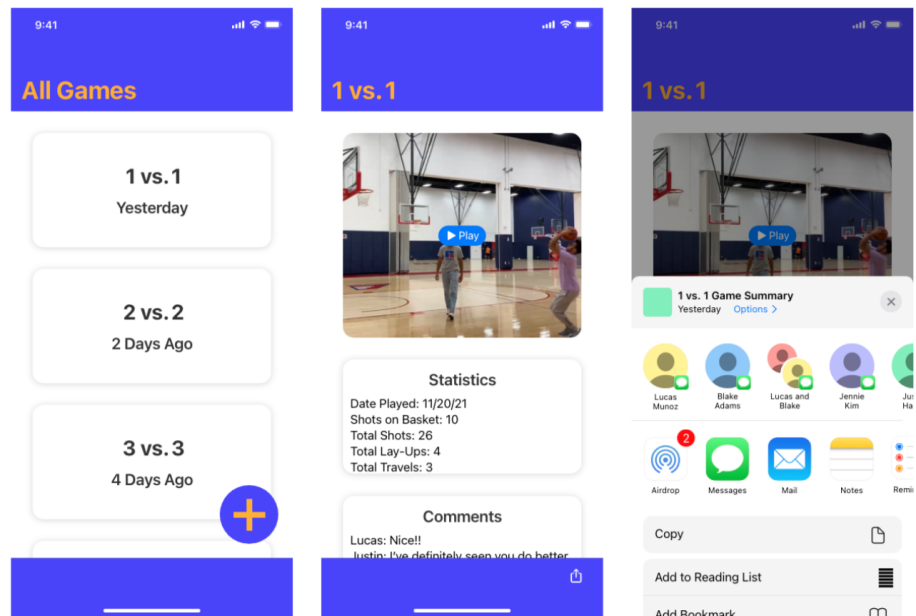


2. Week 12 (11/17/21) [Version 2]

# Single Wireframe



3. **Week 13 (12/01/21) [Version 3]**

# Wireframe



4. **Week 14 (12/08/21)**

# Wireframe



## Week 15 [Final Version]

# Problem Scenario

| Justin does a crossover that leaves Michael on the floor | Everyone's reaction is crazy as Justin is squared up on the three point line ready for a shot | Justin takes the shot without following through and airballs |



Team Members: Alianna Panganiban, Madeline Miller, Jayson Acosta, Gaurav Sindhu, Isaiah Rodriguez, Matthew Barnes

# Problem Scenario

**Wednesday October 20 5:30pm.**

**At the NJIT Wellness and Events Center**

**Wednesday, 5:45pm**

3v3 gameplay starts. Blake passes the ball to Justin

Justin is defended by Michael



# Problem Scenario

Justin does a crossover that leaves Michael on the floor

Everyone's reaction is crazy as Justin is squared up on the three point line ready for a shot

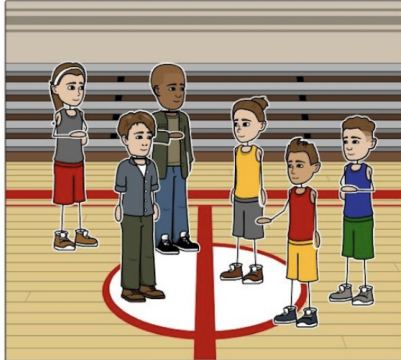Justin takes the shot without following through and airballs



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# Activity Scenario

**5:30pm Wednesday October 20. At the NJIT Wellness and Events Center**

Michael decides to record the gameplay through Hoops. To ensure that everyone is detected by the application he is advised to take a visual scan pregame.

Michael props up his phone against the wall allowing the angle to capture the whole court they are playing on. 3v3 gameplay starts.



# Key Path Scenario

1) Customizable video description (title, time, description, team names)
2) Categorized by date and activity
3) Provided with numbered statistics based on the information collected by Artificial Intelligence and text suggestions
   a) Corrections for shooting form in order to score
   b) Corrections in defending in order to prevent other team from scoring
4) Comments are visible on any videos in the app and can view the comments of others
5) Shareable selected clips with other users and request for their feedback via IOS sharing and actions

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# Wireframe