## Use Cases

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| **Name:** Register a User |
| **Basic Course of Action:**   * User connects to website * User enters name and password * User verifies password * System validates input * System checks if user already exists in database * System saves user in database if data is valid and user does not already exist |

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| **Name:** Log in to App |
| **Basic Course of Action:**   * User opens app * User inputs name and password * System checks details against database * If user exists and password is correct, system takes user to home screen * If user does not exist or password is incorrect, the user is not authenticated and is given a message as to why not. |

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| **Name:** Register a Sensor in App |
| **Basic Course of Action:**   * User powers on sensor * User logs in to app * User selects Register a Sensor * System turns on phone's Bluetooth Connection * System searches for sensor * System asks user to confirm connecting to sensor * If confirmed system connects to sensor * User inputs name for sensor * User selects save * System posts sensor name to database * Database saves sensor name & associates user with sensor |

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| **Name:** Add a Receiver in App |
| **Basic Course of Action:**   * User powers on a receiver * User logs in to app * User selects Register a Receiver * System turns on phone's Bluetooth Connection * System searches for receiver * System ask user to confirm connecting to receiver * System asks user to give receiver an ID * System explains to user where the location of the sensors should be for Data Collection |

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| **Name:** Set up system for Data Collection |
| **Basic Course of Action:**   * User logs in to app * User selects a sensor * The system verifies the connection between the sensor and the app * If the sensor is found the user is taken to the Data Collection Screen * If the sensor is not found the user is redirected to the Register A Sensor Screen * The system verifies the connection between the other 2 receivers and the app * If the receiver is not found the user is taken to the Add A Receiver Screen * Once both receivers are verified as connected, the user may continue * The system asks the user which sport is being played * The system asks the user to place the sensors in the required locations * The system asks the user to name the current data collection * Once the system is set up with the sensors in place the user selects Begin Collection * The system will create a new DataCollection object in the database containing the ChosenSport, a TimeStamp and the DataCollection name. * The system will now move on to the data collection stage |

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| **Name:** Data Collection |
| **Basic Course of Action:**   * The system collects the RSSI and Accelerometer X, Y and Z values from the sensor * The system collects the RSSI values from the 2 receivers * The system creates a Sensor Reading containing Sensor\_ID, Acc\_x, Acc\_y, Acc\_z, RSSI\_1, RSSI\_2, RSSI\_3 and a Timestamp * The system posts the Sensor Reading to the database * The system then takes the next set of values and repeats the process * The system stops data collection when the user selects End Collection |

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| **Name:** Data Processing |
| **Basic Course of Action:**   * For each reading the database receives * The system converts RSSI values into meters * The system finds the sensor's x and y values using a given formula * The system saves the sensor reading |

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| **Name:** View Collected Data |
| **Basic Course of Action:**   * The user logs in to the web application * The user navigates to the Data page * If there is no data currently being collected the page will notify the user and display link to display older data collections * If there is live data the system will display a link to the Live Data * The user selects Live Data * The live data which will be displayed on the screen will be the player's position on the pitch, the player's velocity and the G-Forces experienced. * The player's position will be overlaid on an image of the chosen sport * Graphs on the page will show running values for the other variables |