

Product Backlog

Task 1: Establish Code Base

- As a developer
- I want to create a well documented, functional, and readable code base
- So that the version 0.1 of the SLOW-ARC system can be implemented and can be used by any user
 - This includes..
 - create and execute unit tests
 - accepting the position data
 - calculating the strike zone
 - calculating the pitch's path
 - determining if the path passes through the strike zone
 - reporting whether the pitch is a ball or a strike

Task 2: Read through CSV file

- As a developer
- I want to be able to read through the CSV files given to me
- So that I can take in the data from the files and use the data points to determine strike zone

Wrote extra backlog items just to keep track of organization

Task 3: Calculate Strike Zone

- As a developer
- I want to calculate the strike zone by taking into account the positions of the home plate points and the batter's left knee, right knee, left shoulder, and right shoulder positions.
- So that the strike zone can be calculated

Task 4: Calculate Pitch Trajectory

- As a developer
- I want to calculate the the path of the pitch
- So that the we can use the path of the pitch to help determine if it passes through the strike zone

Task 5: Create Executable Code for User

- Case 1: As a developer
- I want to create executable code that runs and can read the CSV files and make proper calculations based on the unit tests I have created
- So I can deliver an output to the user determining whether the pitch was a ball or strike
- Case 2: As a user
- I want to be able to be able to execute to given code by being able to read the README file and understanding how to run and compile
- So that I can understand with the given data files if the specific case was a “Ball” or “Strike”

Sprint Backlog

Task 1: Establish Code Base

Description: Develop the algorithm to accurately calculate the strike zone based on batter position and plate dimensions.

Definition of Done: Strike zone calculation module implemented, unit tests passed, and integrated into the main system.

Assigned: Dec 11, 2023

Status: Complete, Dec 11, 2023

Task 2: Read through CSV file

Description: Create a parser to be able to read through given CSV files

Definition of Done: Be able to properly read in data and store the following information:

- Home plate point: front close corner
- Home plate point: back close corner
- Home plate point: front pointed part
- Home plate point: front far corner
- Home plate point: back far corner
- Left Shoulder
- Right Shoulder
- Left Knee
- Right Knee
- Ball position: time, middle, left, and right

Assigned: Dec 11, 2023

Status: Complete, Dec 13, 2023

Task 3: Calculate Strike Zone

Description: Integrate the strike zone calculation module with the pitch path calculation algorithm.

Definition of Done: Strike zone detection incorporated into the pitch path calculations with successful integration testing.

- Use the data of the top view of plate and side view to see the area of the strike zone
- Use the radius of the ball to see if it clips the the strike zone at all which would ultimately mean it is a strike
- Know width or far edge and near edge are in pixels and compare with the pixel of the ball for each given position

Assigned: Dec 11, 2023

Status: Complete, Dec 14, 2023

Task 4: Calculate Pitch Trajectory

Description: Integrate the strike zone calculation module with the pitch path calculation algorithm.

Definition of Done: Strike zone detection incorporated into the pitch path calculations with successful integration testing.

- View side data to see if pitch was outside or inside the strike zone based on depth
- View data to see if ball passes through strike zone from over head
- Match up the ratio of the pixel of the ball to the plate to determine if it is a strike and if it is, they should both match up to roughly the same area.
- Pitch data stored in arraylist of quads

Assigned: Dec 11, 2023

Status: Complete, Dec 15, 2023

Task 5: Create Executable Code for User

Description: Outline criteria to ensure the initial code structure meets project requirements and standards. Be able to develop code that the user can easily run and compile from simply reading the README file and see the results of either “Ball” or “Strike” for the given CSV file.

Definition of Done:

- Unit test cases written, executed, and verified against expected outcomes as well extra for test coverage
- Create a notification subsystem with interfaces for more users to subscribe to the system.

- Create a README file detailing installation steps and basic execution instructions for the SLOW-ARC system
- README document created and reviewed for clarity and completeness
- Test cases documented and reviewed by the team during final sprint review

Assigned: Dec 11, 2023

Status: Complete, Dec 15, 2023