

RADMINTON

Sdmay20-44

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Problem

Currently there are very few software solutions to help people improve in racket sports.

Solution

Radminton, an easy-to-use website driven by computer vision that can analyze videos of racket sports and generate feedback and suggestions for the user.

Design Requirements

Functional

- ★ Accept and save uploaded video
- ★ Analyze video and save analysis results
- ★ Communication between server and website

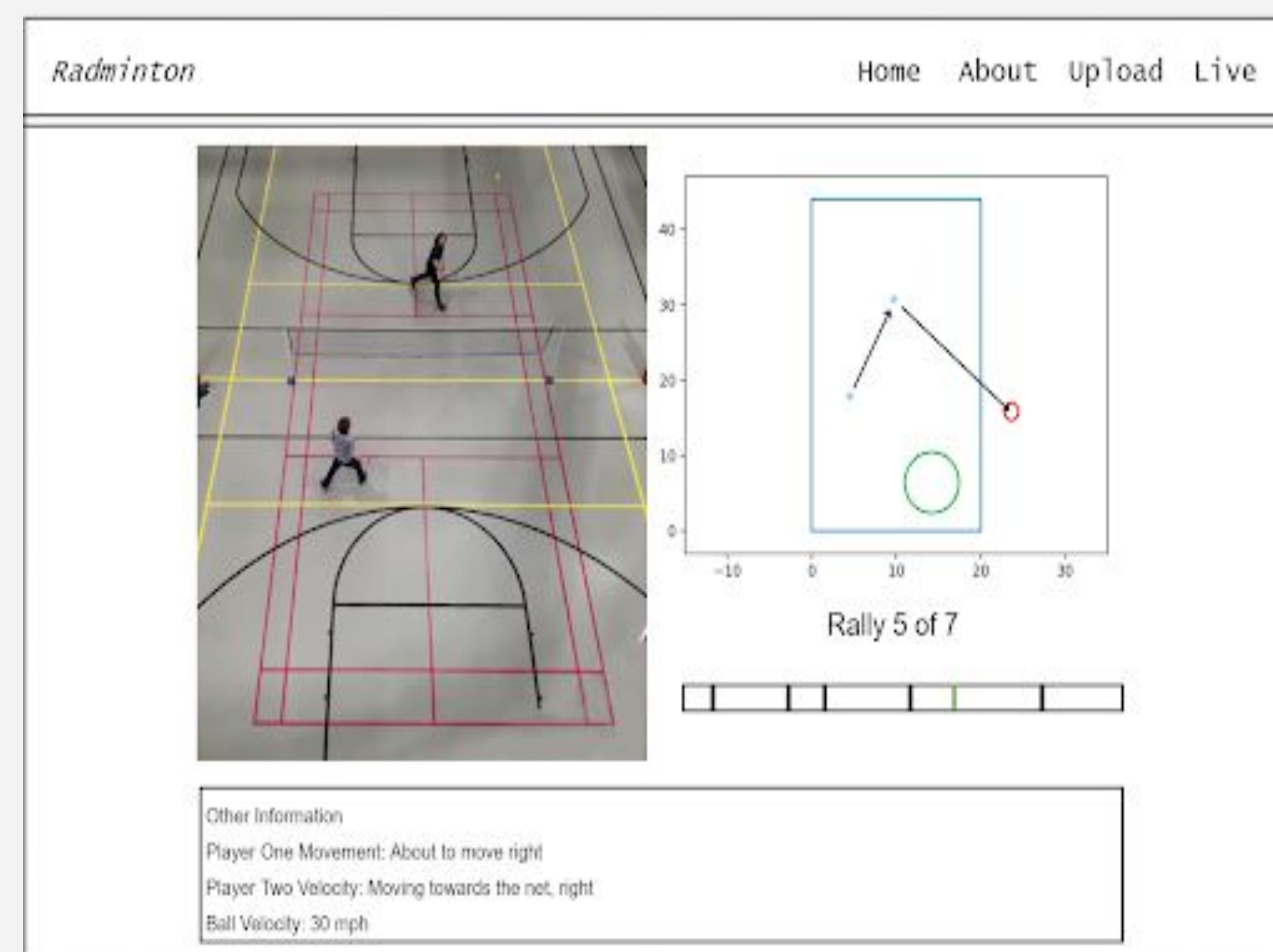
Non-Functional

- ★ Video analysis should take no longer than 1.5x the length of the uploaded video
- ★ User friendly presentation

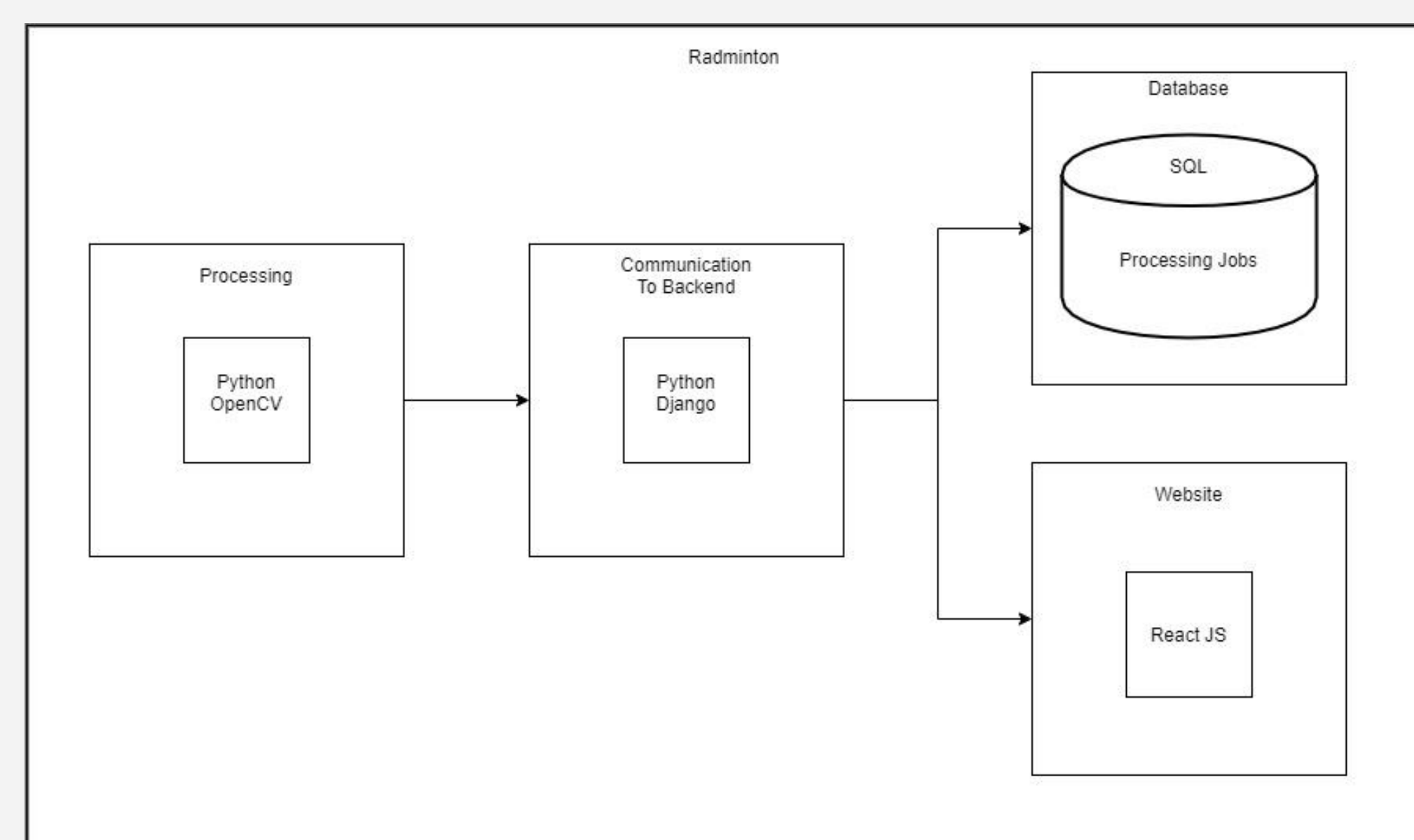
Operating Environment

- ★ The software must be accessible from any web enabled device

Design Approach

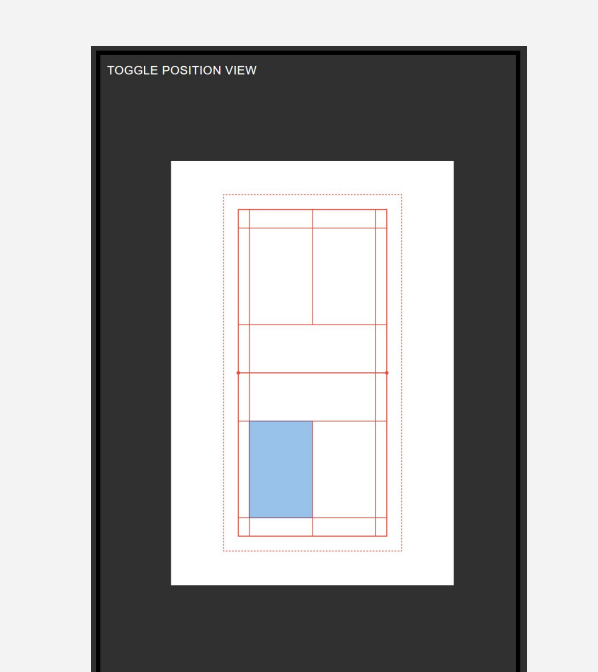
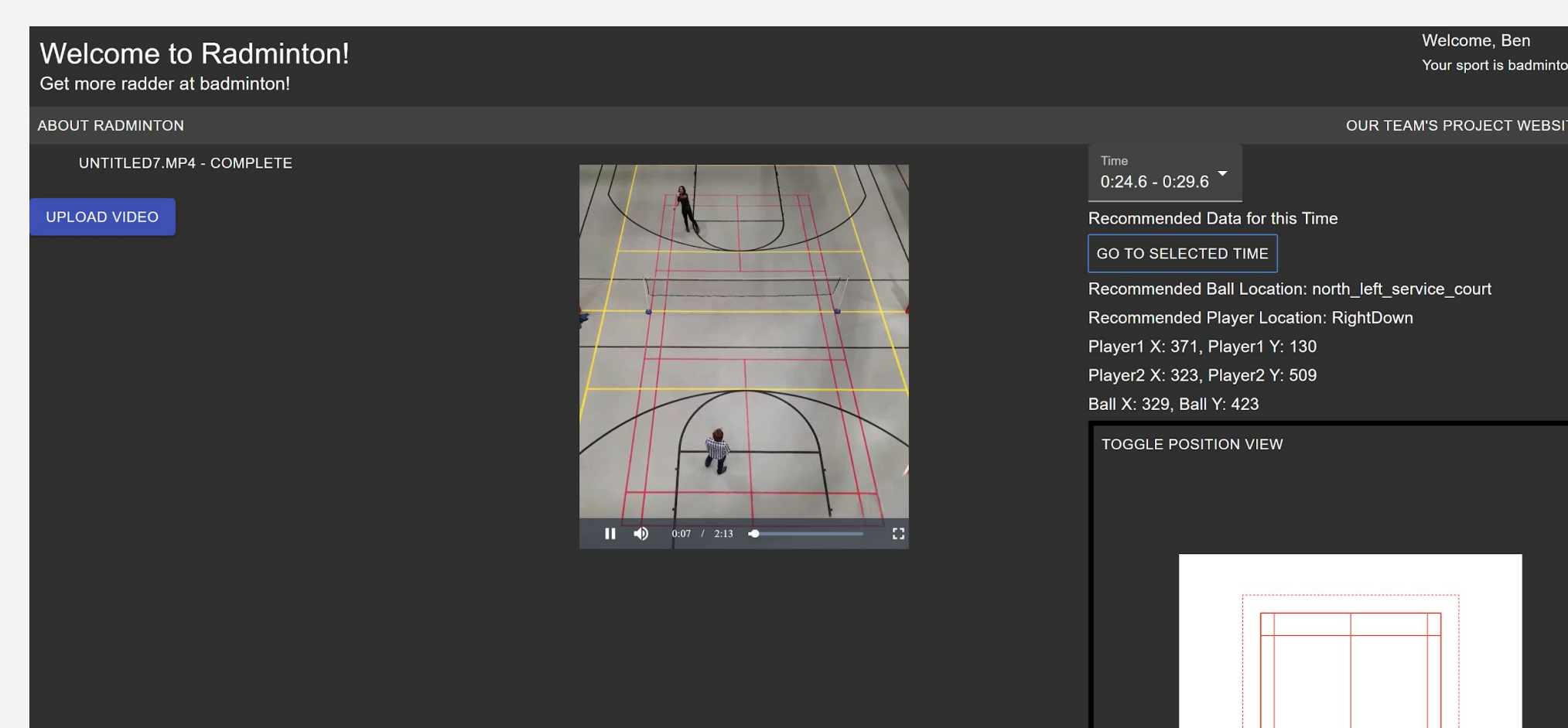


Conceptual Sketch



Block Diagram

- ★ Users submit videos through the React website
- ★ Videos are sent using the Django web service.
- ★ The videos are processed by an OpenCV driven Python application
- ★ Information is then sent back to the React website and presented to the user



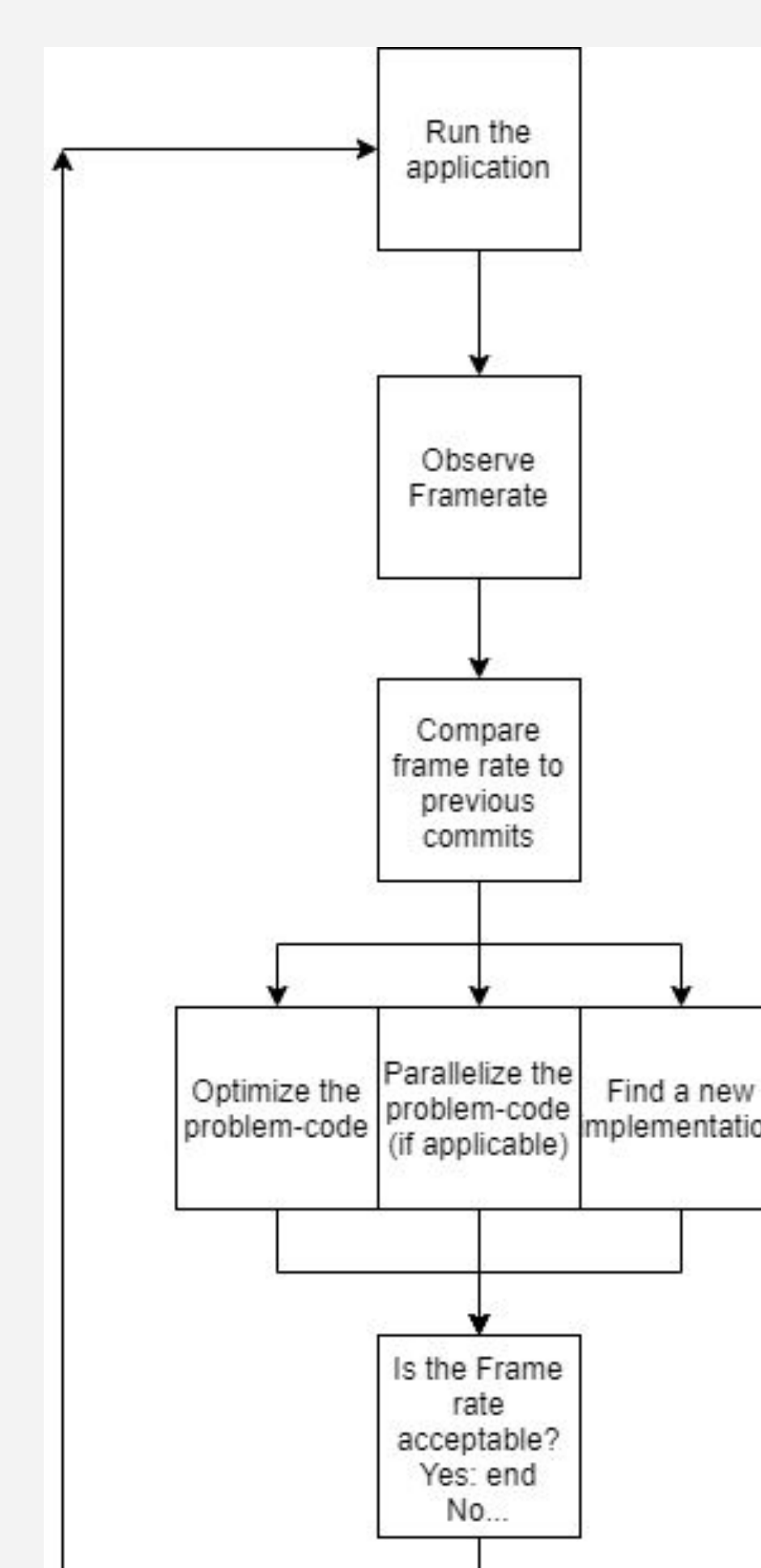
Final Product

Intended Use

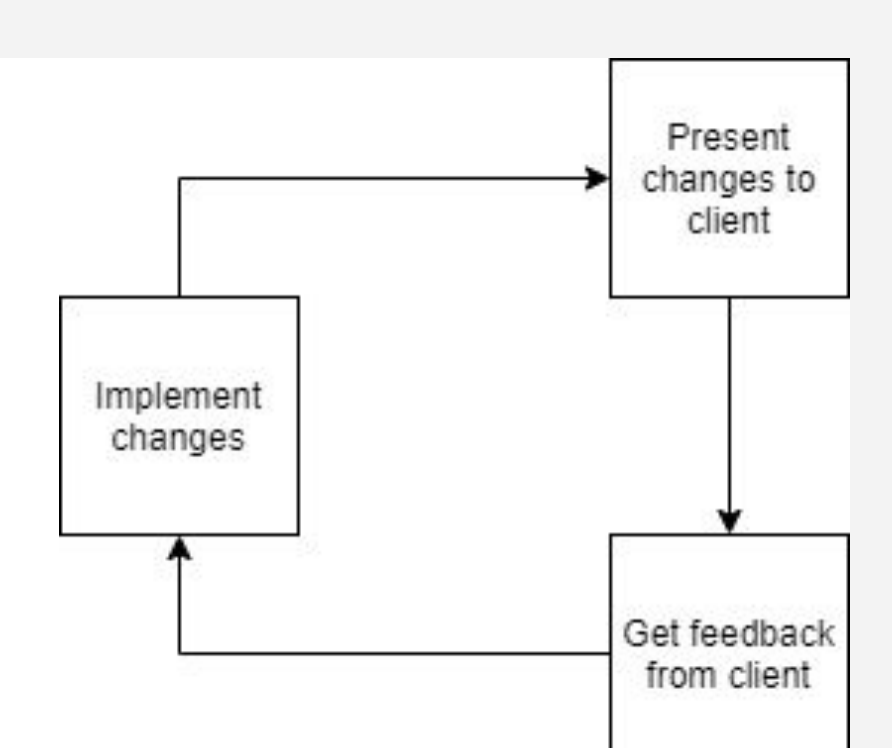
- ★ Improve at and learn badminton
- ★ Upload and store videos and suggestions
- ★ Coach badminton players

Testing

Performance Testing



Usability Testing



Radminton relied heavily on integration testing to ensure acceptable performance and usability.

Technical Details

Frontend Technologies

ReactJS, Redux, Material UI, Axios

Web Service Technologies

Python, Django, SQL

Processing Technologies

Python, OpenCV

Development Tools

PyCharm IDE, Git, GitLab