Archetype Expo 2024

Software Engineering Lab,
School of Computer and Information Sciences,
University of Hyderabad

HoopsEye(Automated Basketball Referee)

Tridhatri Sontena (21MCME17)

Guided by: Dr. Salman Abdul Moiz

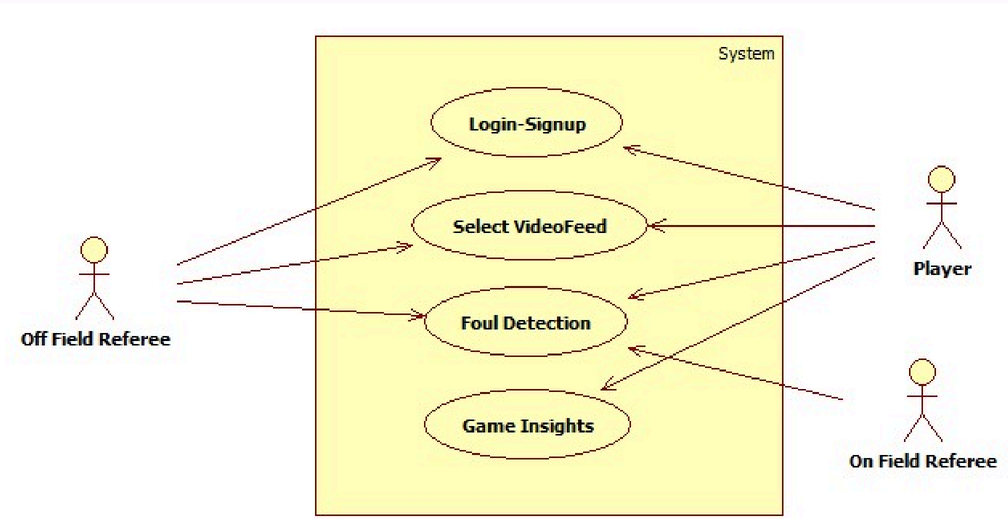
Abstract:
Traditional basketball refereeing relies heavily on human judgment, which can be subjective and prone to errors. HoopsEye addresses this challenge by providing an automated system that detects fouls such as travel, double dribble, and carry with unparalleled accuracy and efficiency. Through advanced image recognition algorithms, HoopsEye tracks the movement of the basketball in real-time, enabling instant feedback on fouls and referee decisions.

Problem Statement
Traditional basketball refereeing relies on subjective human judgment, leading to inconsistencies and errors, necessitating an automated solution for accurate and efficient foul detection.

System Design-
Python 3.10.13

Tools used for webpage
1) Flask framework version 3.0.2
2) Python 3.10.13
3) SQLAlchemy 2.0.29 (database system)
3) HTML
4) CSS
5)Javascript
5) jQuery
6) Bootstrap

Use Case Diagram



Conclusion:

This design when implemented with the given future enhancements will ease the efforts of refereeing a basketball game and also improve players' performances.

Future Enhancements

Advanced Analytics: Incorporate advanced analytics features to provide deeper insights into player performance.
Integration with Wearable Technology: Explore integration with wearable devices to capture player movement data in real-time, enabling advanced performance analysis and injury prevention.

- Develop a mobile application for HoopsEye to

provide on-the-go access to game information, statistics, and notifications

References

1.https://docs.ultralytics.com/
2.https://flask.palletsprojects.com/en/3.0.x/
3. https://forum.opencv.org/t/useful-links-read-first/1842
4. https://github.com/maxcountryman/flask-uploads

tridhatri.sontena@gmail.com or 21mcme17@uohyd.ac.in