CAPSTONE PROJECT 2024

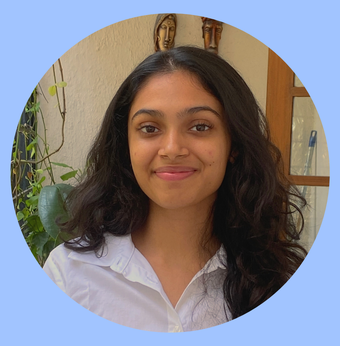
Title: RepRight: AI Assissted Gym Form Correction

Domain: MACHINE LEARNING

Batch No: III

Dr. Sandesh B J

Supervisor



Moulya Shetty
PES2UG20CS204

Nameeta Kuruwatti
PES2UG20CS211

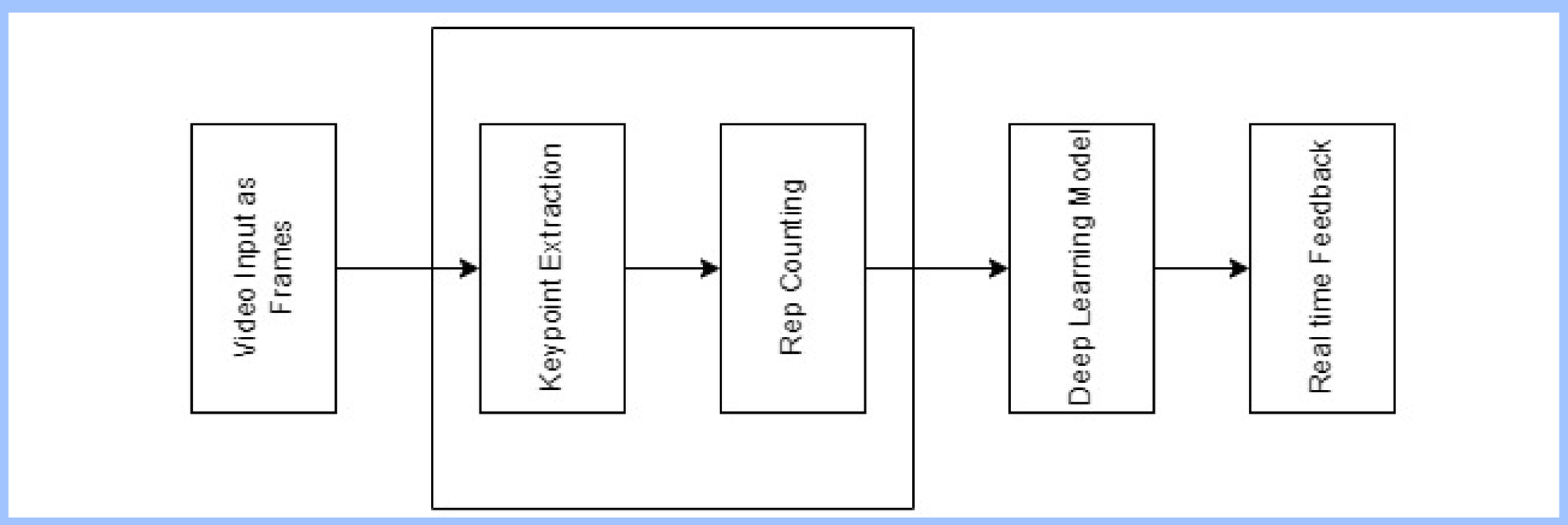
Prajay V K
PES2UG20CS245

Nandita Pydikondala
PES2UG20CS258

Abstract:

Developed a machine learning model that can assess the posture of an individual while performing squats or barbell rows. The model can be hosted on an app and a mobile phone camera is used to capture video input of the user performing the exercise. The machine learning algorithm then analyzes the input and provides feedback on the user's form. The goal of this project is to help users improve their exercise techniques and reduce the risk of injury by providing accurate feedback on their posture based upon a large dataset.

Architectural Flow / Data Flow Diagram:



Results and Discussion:

- Squat Model was built on dataset of angles and key points extracted from images using MediaPipe. In comparison with Vgg16 and MobileNET, the squat model produced the most accurate results of 99.86% and was incorporated into the app
- Barbell Row Model was built using RESNET 50 and had the least loss in comparison with Vgg16. This was used as the final model for the obtained barbell row dataset.