



41_Presentation

FCI

Assiut University

Eng . Amjad Dife

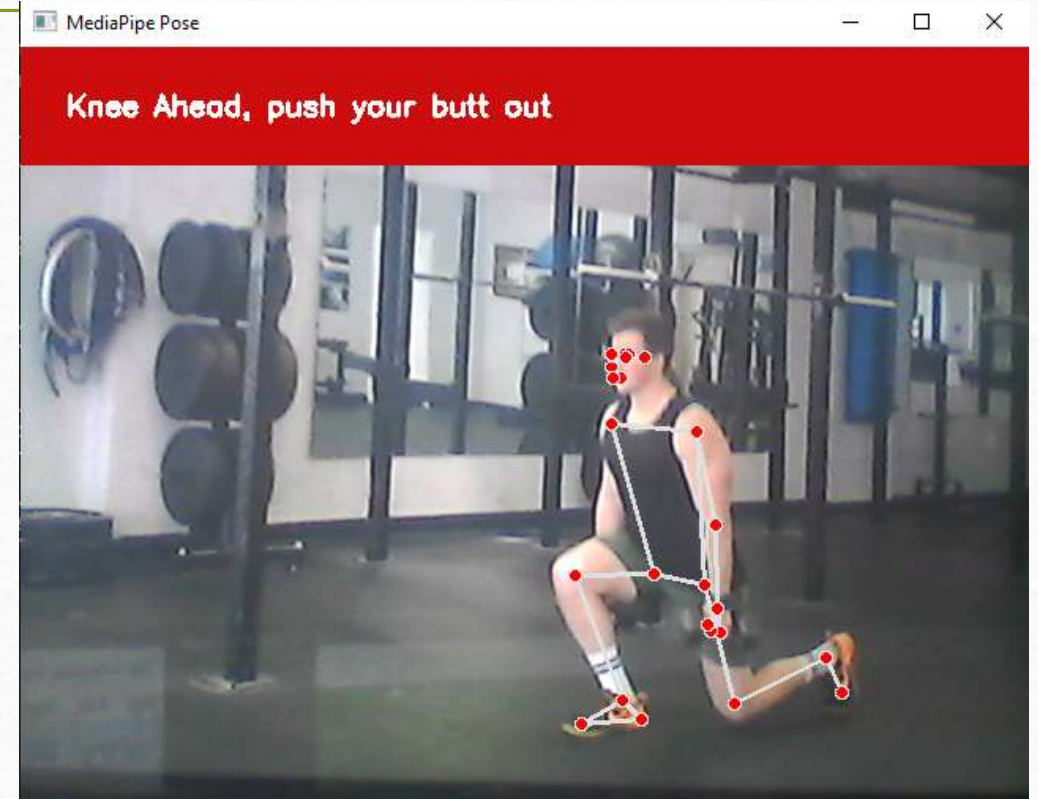
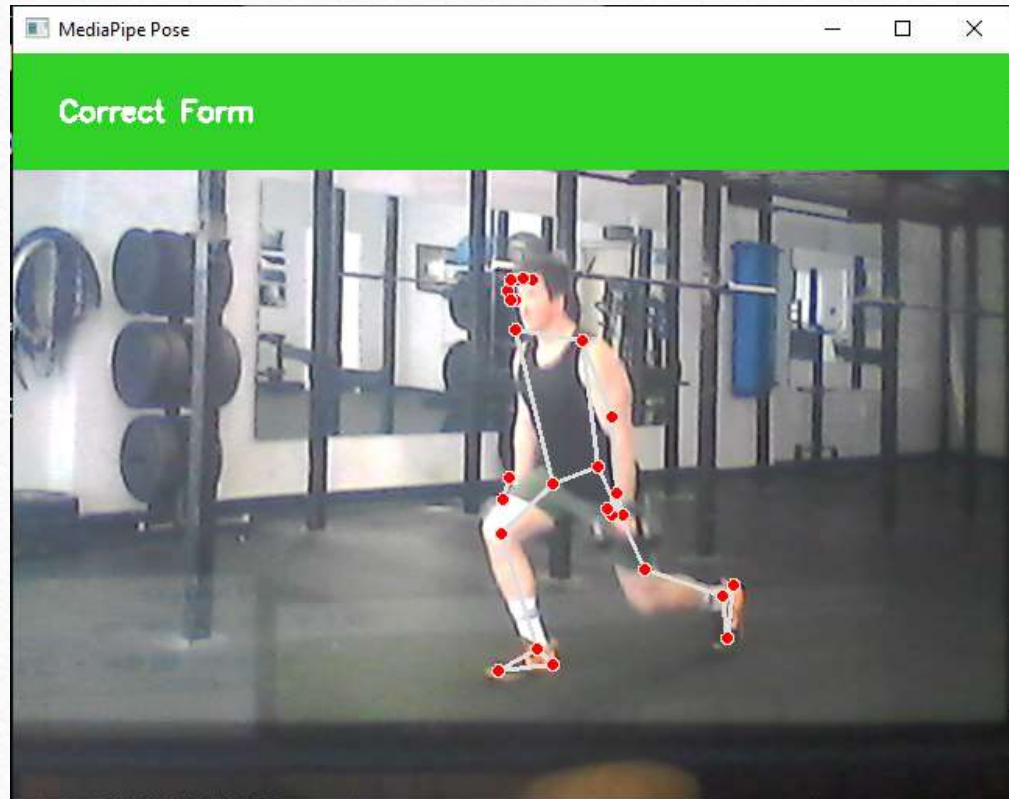
Team member

Name	ID
Muhammad Hussein Fayek Hassan	162020506
Muhammad Hussein Muhammad Hussein	162020507
Yacoub Zaghloul Samaan Rizk	162020738

Task description

- we work on AI Coach App
- Application that Provide users real-time guidance , tips and advice during exercise to improve the quality of exercise at home and reduce the risk of injury .

Demo



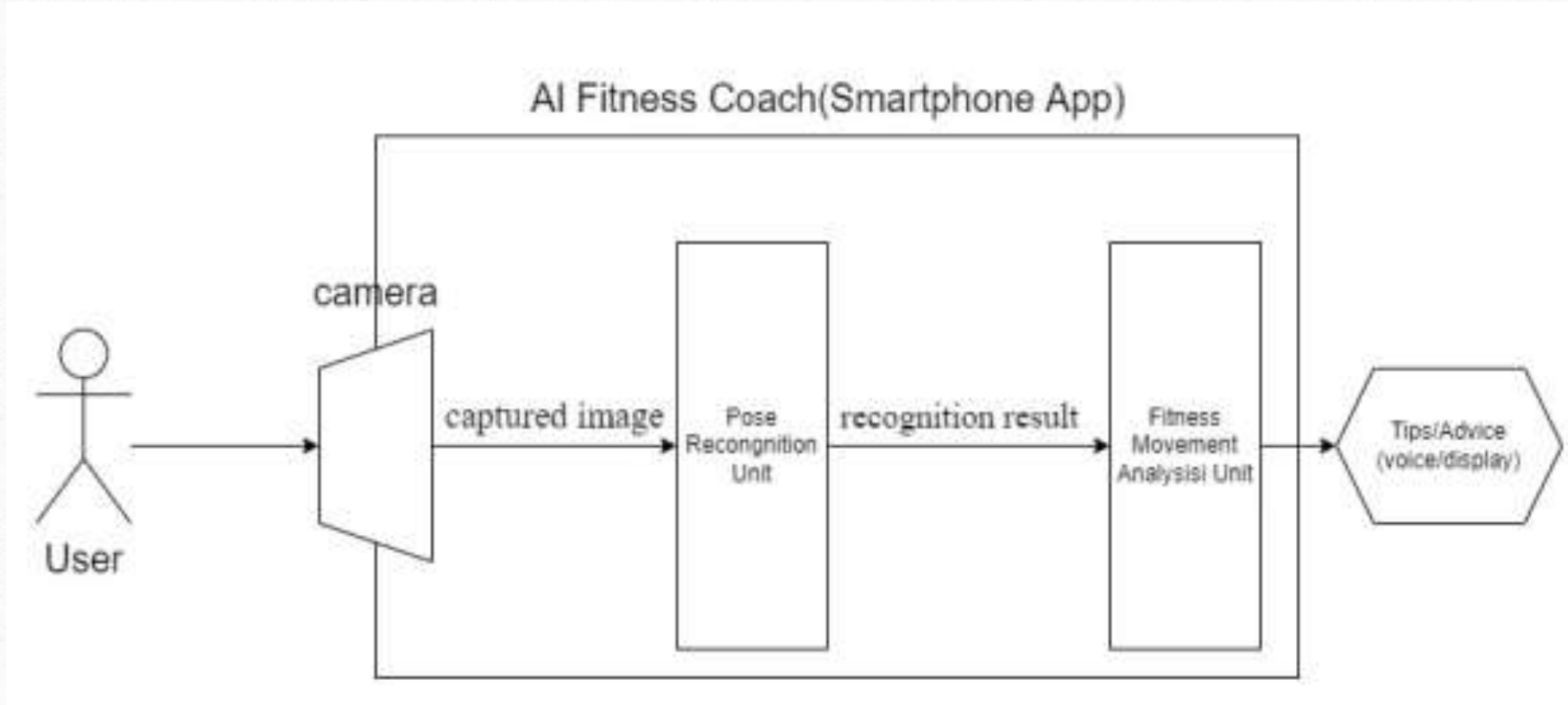
Contribution

- Imports libraries such as OpenCV, Mediapipe, TensorFlow, and pandas.
- Utilizes the “ReverseLung” module , presumably containing functions related to Reverse Lung analysis.
- Uses the “Mediapipe” library for real-time pose detection from video input.
- Collects pose parameters such as neck, knee, hip, and ankle positions.
- Stores these parameters in a dictionary and converts them into a Pandas DataFrame.
- Loads a pre-trained TensorFlow model(“**working_model_1**”) for posture classification.
- Utilizes the model to predict the type of posture based on the extracted pose parameters.
- Draws labels indicating the recognized posture on the video frames using OpenCV.
- We modified the model to give the user the correct way(Feedback) to perform the

Data

- We brought a dataset that was made for Reverse Lung from “Kaggle”.
- Dataset consists of 2 folders for the exercise.
- Each folder contains 30-50 video.

Project architecture



Flowchart how the model work

Methods

- The Model created with Tensorflow Keras.
- Using Mediapipe for pose landmark detection.
- The number of classes for the Model is 2.
- The optimizer is “Adam”.
- The Loss function is “binary_crossentropy”

Result

- Model Accuracy =
Number of correct predictions / Total number of predictions * 100%
- Accuracy = $79 / 80 * 100\% = 98.75\%$
- The percentage of loss 0.65%