

HUMAN ACTIVITY RECOGNITION

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UML Diagram

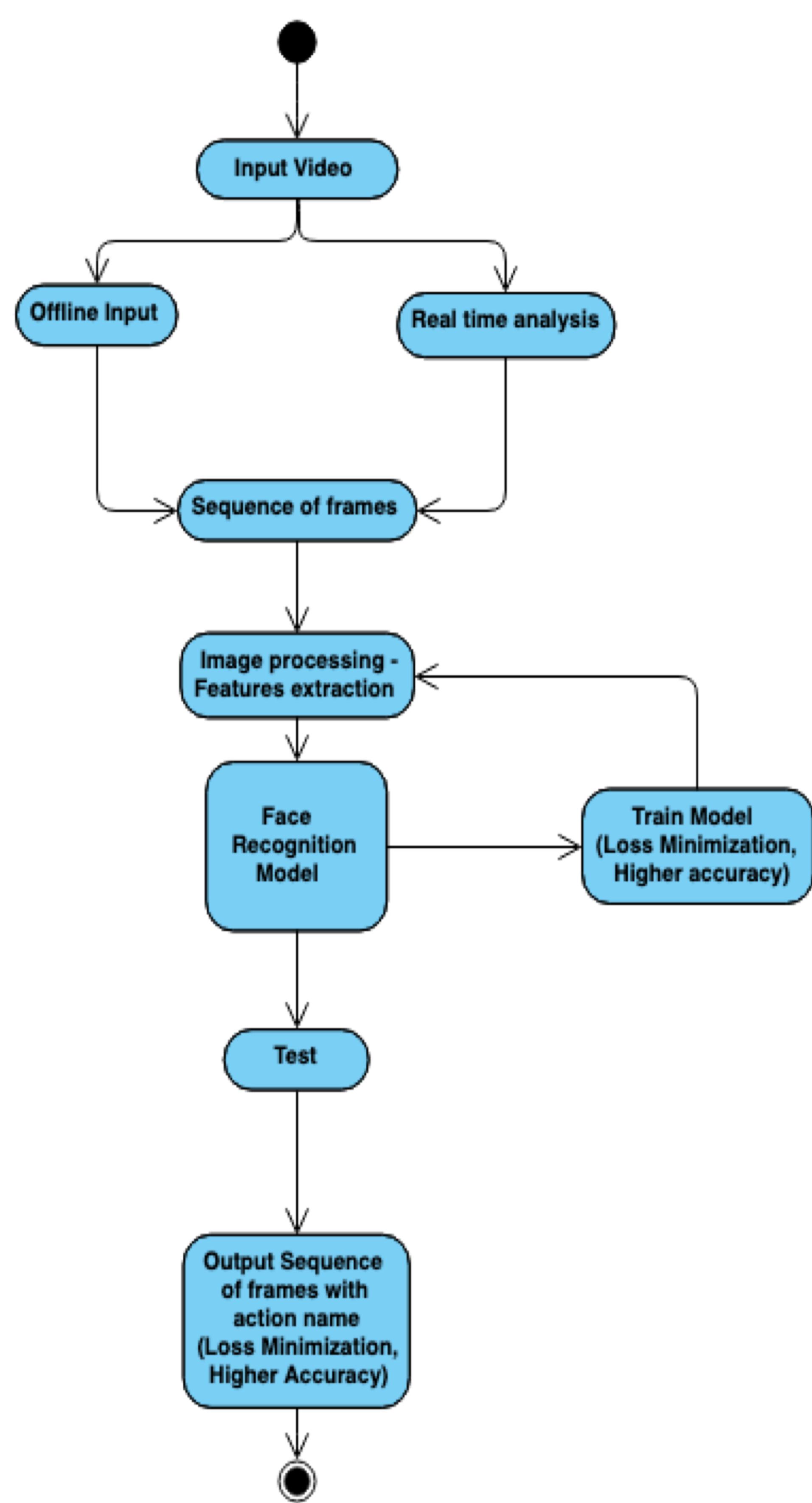


Fig. 1 – Activity Diagram

Model & Algorithm Used

We have used Realtime pose detection by a famous model name Open Pose. We used Deep Sort algorithm which helped us with the human tracking in many scenarios. Action recognition was done using DNN for each person based on single framewise joints detected from Open Pose.



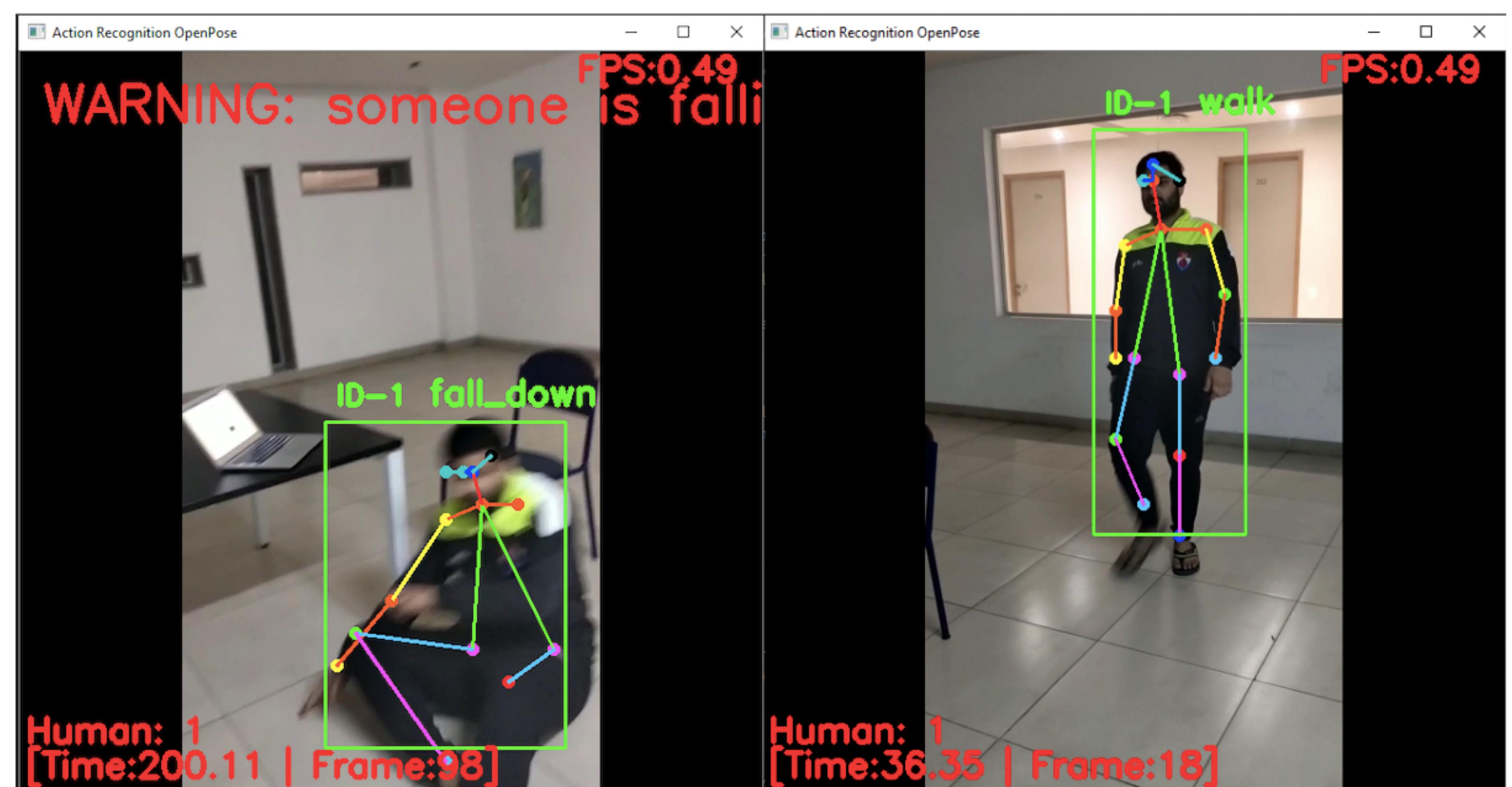
Fig. 2 - Pose estimation using open pose

Abstract

Human activity recognition has been effectively researched in a wide scope of uses. Most of them, however, either centre around straightforward activities wherein entire body movement is included or require a variety of sensors to distinguish day by day activity. In this study, we propose a human activity recognition system that collects information from devices like webcam or external camera and utilizes an artificial neural system for classification. The proposed framework is additionally upgraded utilizing area data.

We think about a few activities, including both basic and day by day activities related to security domain. Trial results show that different activities can be classified with a good accuracy. The ongoing innovations in convolutional neural networks (CNNs) alongside the plenitude of image and video content over the web have introduced open doors for the analysis and classifications of image and video content using deep learning and neural system.

Results



Conclusion

We developed Human Activity Recognition System which would work on real time basis with good accuracy. Our project can recognize many activities like kicking, waving, walking, operate and many more. A warning also pops up when someone falls. Primary we develop our project as to use it in security domain which is a success. It is working on real time basis but its slow. It is also able to detect multiple activities in a frame and recognize them with different binding box.

Future Work

- Action recognition in our project is framewise based, so it's technically "Pose recognition" to be exactly.
- Action is actually a dynamic motion which consists of sequential static poses, therefore classifying frame wisely is not a good solution.
- Considering of using RNN(LSTM) model to classify actions with dynamic sequential joints data is the next step to improve this project.