
Human Act Recognition

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Abstract

1. Human machine interaction becomes one of the most researched topics in multimedia processing, developed in order to tackle technology advances and allow disable person to communicate easily with the machine.
2. The safety of senior citizens and children living alone at their residence has been a big concern for working individuals taking care of them. There is a need for a solution which should ensure 100% safety.

The purpose of this system is to ensure safety of individuals living alone, allowing the person taking care of him to monitor and have a hassle free state of mind in case of any emergency.

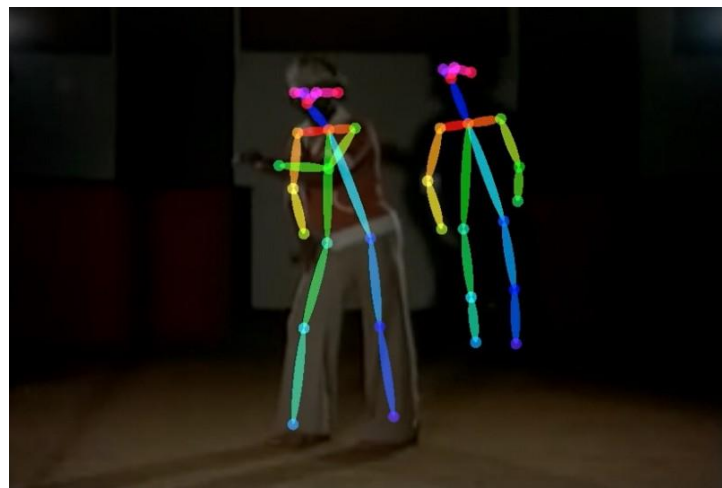
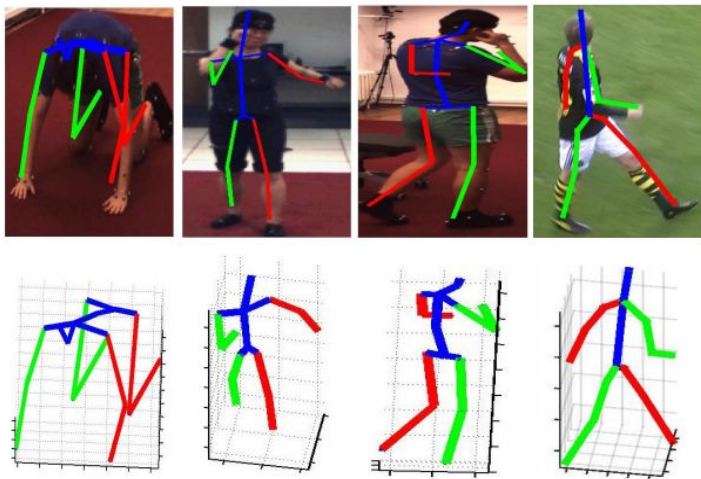
Problem Definition

Solution should be such that the working individual can monitor them from their workplace itself.

- All the activities of the individual should be viewed.
- Any suspicious actions should be detected
- Alert the individual wherever he/she is, in case of any suspicious activity.
- Monitoring through
——surveillance

Existing Solutions

- Human Pose Estimation using Tensorflow
- Single pose and Multi pose detection with deep learning



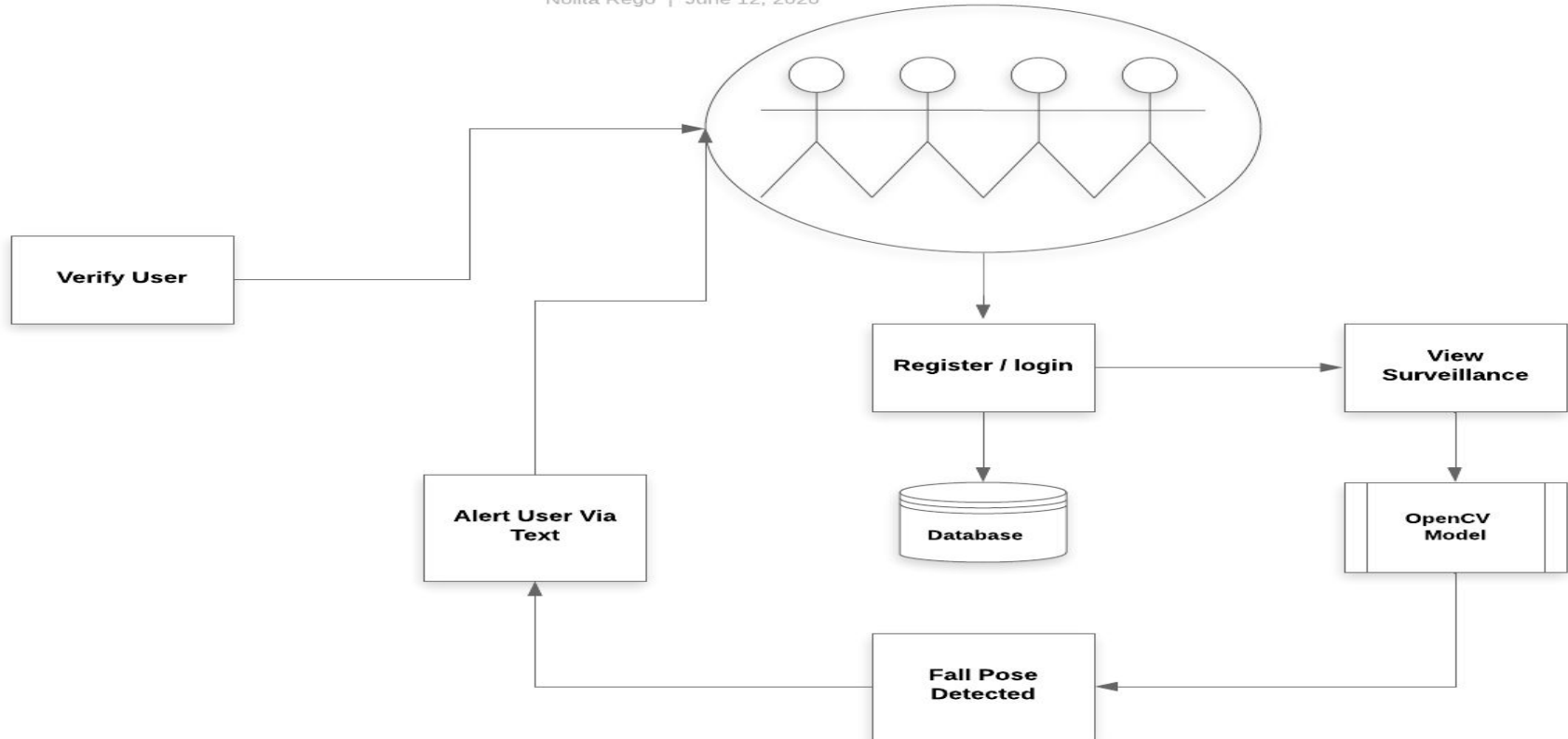
Drawbacks of Existing Solutions

- The existing solutions show great result, but only shows real time movements of the individual and does not recognize the activity done.
- Also, the methods used for estimating the actions are highly complicated.

Methodology of Proposed System

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Algorithm

1. Given a video/camera as an input.
 2. Input given is converted into gray color.
 3. After background subtraction, a contour is drawn around the moving individual (Contour is a line joining the boundary points of an image used for shape analysis.) in a rectangle.
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4. If contoured area is less than a specific width,
then add 1 to the count variable.

5. If the count variable increases more than 10,
then fall is detected.

6. After detection, a text on WhatsApp is sent to the individual immediately as an alert message.

Algorithm

Result

- We are able to detect suspicious activities of the person under surveillance (falling pose).
- The system successfully delivers the need of the user i.e. provides surveillance and alerts the user if any suspicious behavior is noted via a text.

Conclusion

The system successfully detects the suspicious activity by the person under surveillance at the residence and alerts the individual monitoring the person from his/her work place by sending an alert message.