

Review Paper on Identification of Theft using Xbox 360 in ML

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Abstract - Surveillance cameras have been popular as measures against thefts. They are useful for deterrence of crimes such as theft and murders, it is possible to detect crimes by installing artificial intelligence to surveillance cameras. However, a large amount of behavior data must be trained for analyzing a gesture pattern of a person by image recognition. In this world's mostly crimes related to money. The security of bank, jewellery shops, houses and malls must be properly secured from theft people. Surveillance cameras or any camera like Kinect sensor have been measurely used at many places. The accuracy of image recognition by artificial intelligence and machine learning has especially increased. That is possible to detect crimes by using Kinect camera. A large amount of gesture and posture data is used to analyze the behavior of person that means it's a Theft or not by the image processing and the data size is larger as they are image data, for that Dynamic time wrapping is used to analyse the object and person. We propose an idea to judge a behavior gesture of a person using Kinect sensor in order to detect crimes at real-time.

Key Words: Abnormal behaviour, Kinect, Posture Recognition, Speech to Text, Alarm, SMS, Image Processing.

1. INTRODUCTION

In recent years, cases such as theft and murder have been steadily occurring, and the number of occurrences is also increasing. The number of placed surveillance cameras has been increasing in order to deter crimes or identify suspects after the incident. In addition, due to the development of computer technology such as image processing and artificial intelligence, suspicious people can be detected. The camera will recognize the action being performed by the user, it gives skeleton of human body when user stand in front of Kinect sensor. These actions are compared with action stored in dictionary. A dictionary is maintained with all gestures and related speech are stored. If match is found then the SMS and alarm is generated.

1.1 MOTIVATION

Recently we heard the incident about Muthoot Finance in Nashik. In the Muthoot finance the theft was done for Robbery purpose and people were scared. That time one employee of their Muthoot Finance tried to go and press the alarm button which is used for their security of persons. The employee which is an IT engineer was killed by the robbers. From that incident we got an idea to make a desktop application which can be helpful for the bank security from such an incident. This idea has been used in our project. In which we are making a desktop application that will recognize the theft action means the gun holding action and many more

gesture were caught by the kinect sensor.(kinect camera).

1.2 PROBLEM DEFINITION

Surveillance cameras have been popular as measures against criminals. They are useful for deterrence of crimes such as theft and murder, but they cannot prevent crimes since real-time watching must be required for real-time detection of the crimes

2. MATHEMATICAL MODEL:

$$S=\{I,O,F\}$$

Where,

S=System

$$I=\{I1,I2,I3, \dots, In\}$$

Where,

I is the Set of Inputs,

I1=Theft Action

I2=People Action

I3=Speech Recognition

$$F=\{F1,F2,F3,F4,F5,F6\}$$

Where,

F is a set of Functions,

F1=Skeleton Tracking

F2=Normalization

F3=Train Gestures

F4=Test Gestures

F5=Classify Action

F6=Recognize Speech

$$O=\{O1,O2\}$$

Where,

O is the set of Outputs

O1=SMS

O2=Alarm

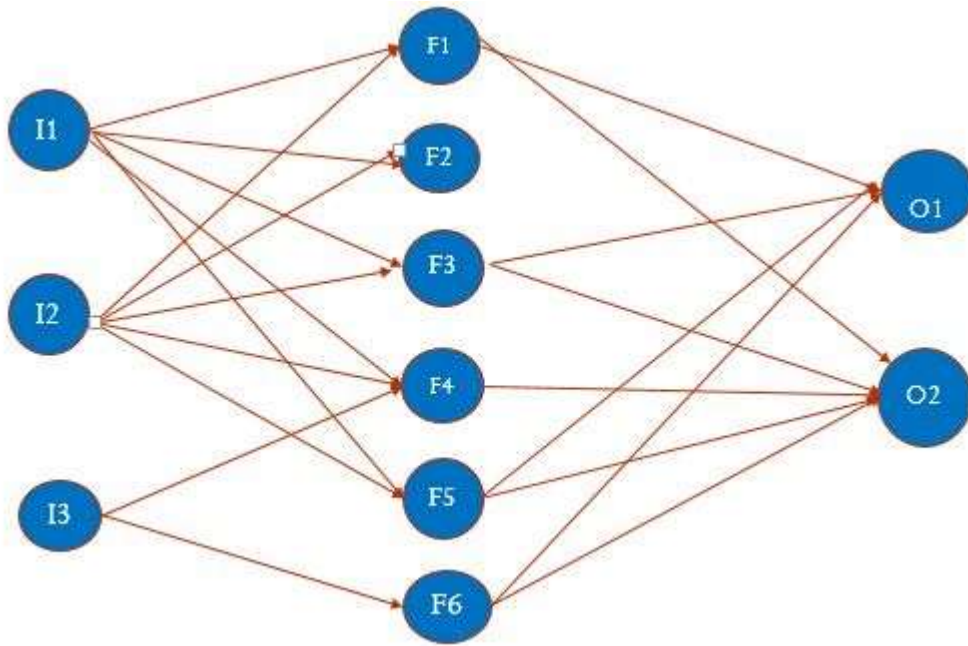


Fig. Venn Diagram

3. System Architecture

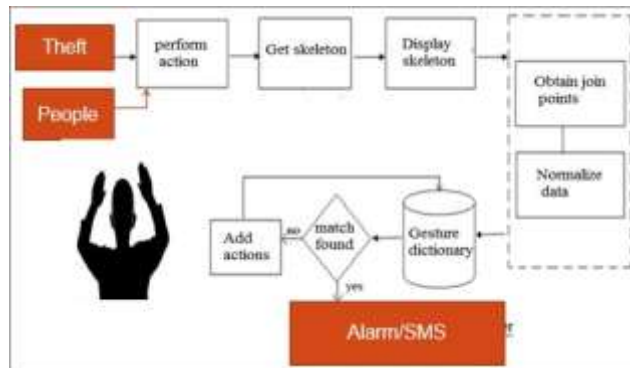


Fig -2: System Architecture

Consider the block diagram from Fig 2. The deaf user is in front of the camera doing a sign or getting ready to do so. With a frame rate of 20fps, a new frame is obtained and the video stream is updated with the skeleton of the user overlapped onto it. At that point, if the user wants to record a sequence (otherwise, the system asks the camera to get the next frame), three main blocks are executed: the first block consists of obtaining the data of the joints of interest (JoI) required for the frame descriptor, the second block consists of normalizing these data, and the third one consists of building the frame descriptor. Then, if the working mode is set to TRAINING (meaning that the user is adding a new sign to the training set), the frame descriptor

is added to the correspondent file of the dictionary. Otherwise, if the mode is set to TESTING (meaning that the user wants to translate the sign that is been done), the frame descriptor is added to the current test sample. Then, the system checks if the current frame is the last frame of the sign. After a sign is finished and if the working mode is TESTING, the test sign is compared using a classifier with the signs from the dictionary and the corresponding output is displayed so that the ordinary user will know the corresponding word in the spoken language. After that, the system keeps going with the next frame and the flow of the block diagram is repeated again.

CONCLUSION

We develop a system in which posture recognition can be used to detect abnormal behavior of a person in the Bank. We achieved this by using skeleton data that can be extracted from the depth image provided by a 3D camera like Kinect. Surveillance cameras are effective to deter theft and murder. However, they cannot prevent incidents in advance unless video is manually watching in real-time. Technologies of image recognition and artificial intelligence have made the surveillance cameras detect the incidents in real-time. In Future you can developed an Android application for the same working.

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