**Software Requirements Specification (SRS) Human Act Recognition to Human Behavior Analysis**

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**1.Abstract**

Human machine interaction becomes one of the most research topics in multimedia processing, traditional techniques for communication are developed in order to tackle technology advances and allow disable person to communicate easily with the machine, and to understand their activity using computer computing. In this paper we are focused on human behavior analysis from video scene and it is worth noticed that many information are hidden behind gesture, sudden motion and walking speed, many research works tried to model and then recognize human behavior through motion analysis. In our work we will explain the human action recognition by K Nearest Neighbors approach.

**2. Introduction**

**2.1 Purpose**

The purpose of this document is to describe the external requirements for a Human Act Recognition system for different scenarios like security, crime scene detection at tolls, isolated areas, residential societies, etc. It also describes the interfaces for the system.

**2.2 Scope**

Scope of this project extends to analyzing the human action and behaviour, also increasing the security of individuals where this system will alert the individuals present in that particular locations about their actions. This project and the implementation of the machine learning with image processing model can be used for many scenarios for the same. It gives a proper explanation and implementation of various new technologies like the usage of flask, different image processing techniques and other machine learning libraries.

**2.3 Definitions, Acronyms, Abbreviations**

YOLO - You Look Only Once

You Only Look Once is a real-time object detection algorithm, that avoids spending too much time on generating region proposals. Instead of locating objects perfectly, it prioritizes speed and recognition.

**2.4 References**

Marco Cristani ,R.Raghavendra , Alessio Del Bue Vittorio Murino “Human behavior analysis in video surveillance”: A Social Signal Processing perspective 2012.Neurocomputing 100 (2013) 86–97

Albert Ali Salah, Theo Gevers, Nicu Sebe and Alessandro Vinciarelli “Challenges of Human Behavior Understanding”: University of Glasgow

**2.5 Developer’s Responsibilities**

Developer is required to:

● Develop the Image Processing and Machine Learning model

● Develop a website to integrate the given model

● Integrate the model using Flask

● Deploy the website on some web hosting service.

**3. General Description**

**3.1 Product Functions Overview**

The individuals in the camera footage will be recorded and stored in a database. The areas will be constantly under surveillance. The individual’s actions will be detected and recognized which will be analyzed. If any suspicious behavior is detected then will be informed to the security of the organization. All the camera recordings should be saved in the database. This system is to find out the individual’s behavior at the present scene, so as to decrease the level of crime rates in the country.

**3.2 User Characteristics**

The main users of this system will be the organization’s admin.

**Admin:** The authorities can enter the web app by creating an account entering keydetails like name of the organization, admin of the system, contact, email and password etc. An OTP and email verification based authentication is implemented for security purposes.

Once the admin’s profile is created, they can connect their camera’s identification number. The, the admin can have access to those areas under camera surveillance.

**3.3 General Constraints**

Not Applicable

**3.4 General Assumptions and Dependencies**

The admin must have an Email ID and a Phone Number.

**4 Specific Requirements**

**4.1 Inputs and Outputs**

**Inputs:** Each video captured by the camera should be in the format like .mp4. These files will be the input to the model which is already working.

**Outputs:** The individuals in the present scene will be detected for any suspicious behavior and informed to the security of the organization through call or SMS.

**4.2 Functional Requirements**

**Admin Registration:** System will allow the admin to add themselves on the system. The system requires the user to enter details like name of the organization, admin of the system, contact, email address, etc. Authentication by: Email and Phone number.

**Admin Profile:** The admin can enter the camera surveillance monitor tab and can monitor the areas under camera surveillance. He can also call the security or the cops manually or will be done automatically.

**View monitor :** The admin can enter the camera surveillance monitor tab and can monitor the areas under camera surveillance.

**Sign In:** The admin first needs to sign in to the system with the mobile number and password he/she have provided with. The system needs to check for that mobile number and password and then only allow him/her to access the system.

**Search recordings :** The admin can search for history of recordings from the database and afterwards view the previous videos.

**Database:**

**Admin related Information:** The admin shall have the following mandatory information: name of the organization, admin of the system, contact, email address.

**Videos:** The recordings of the past days will be stored in the database.

**4.3 External Interface Requirements** User Interface: The Admin will specify the input file, containing video sources already under surveillance or intended to be submitted.

**4.4 Performance constraints** Performance constraint is although not there but at the same time the machine learning modelling will require a lot of training which will get trained as we use the system.

**4.5 Design Constraints Software :** None

**Hardware :** None