SMART CAMERA

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1 Introduction

1.1 Purpose

This document contains all the information regarding, the SMART CAMERA i.e., the Specifications, Parameters, and Prerequisite needed to develop the system. It will give the reader a brief idea about what the system is supposed to do and why it is being created.

The purpose of the system is to identify any person, using smart face recognition system, whose information is stored in the database.

The intended audience for this software, are security personnel, police department, or any person or organization that deals with security and safety.

1.2 Scope

This Smart camera is supposed to be installed at public places like Airports, Malls, and Restaurant. It will detect any person whose information is stored in the database. Then it will send an alert message to the office. As it is a camera, it will be also used as CCTV. This system is likely to be used by a police officer or intelligence department to identify any criminal in public places.

This system can also be used by Multinational Companies to enhance their security.

1.3 Definitions, Acronyms, and Abbreviations

CCTV: camera used for recording

GB: Gigabyte, units for storage

RAM: Random Access Memory

Face Recognition system: system we are using for face recognition for our smart camera

1.4 References

Lecture Slides

Examples pdf posted in course shell

https://www.nbcnews.com/news/us-news/facial-recognition-gives-police-powerful-new-tracking-tool-it-s-n894936

https://www.theguardian.com/commentisfree/2020/jan/27/facial-recognition-cameras-technology-police#img-1

1.5 Overview

The rest of the section in this document will be mainly divided into 2 parts.

1. Overall Descriptions and
2. Specific Requirement.

In the **OVERALL DESCRIPTIONS**, we will be talking about the overall product description. It will include product perspective, Product Function, User Characteristics, Constraints, Assumptions and Dependencies of product, and Apportioning of Requirement.

While the other section i.e., **SPECIFIC REQUIREMENT,** we will be talking about the product requirement and it will include topics like External Interfaces, Functions, Performance Requirement, Logical Database Requirements, Design Constraints, and Software System Attributes.

2 Overall Descriptions

2.1 Product Perspective

The **Smart Camera** is a system which is not used by general or local public. They can be developed on special requirement.

This type of system is installed in Toronto, Canada.

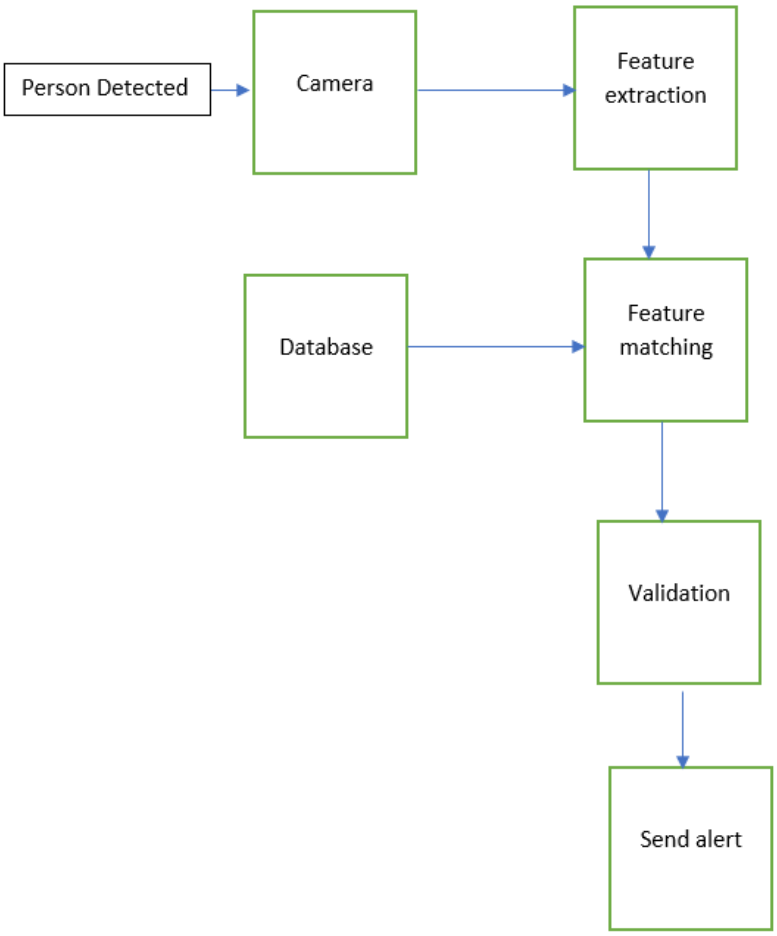

Fig.1 Block diagram of System.

2.1.1 System Interfaces

This system will interact with the computer at office.

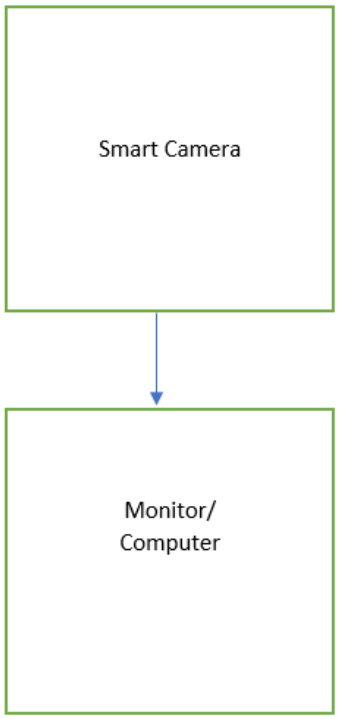

Fig.2 block diagram of system interface

2.1.2 User Interfaces

Login to system

Add, edit and modify criminal ‘s data into database

Validate updated photos

Search for details

Add, edit, and modify Users

Control the angle of the camera through computers

Zoom in or zoom out to go through the images using computers. Hardware Interfaces

This system will interact with computers used to store data. It will also require necessary drivers installed in computers.

2.1.3 Software Interfaces

This software will interact will other software like

Mail system: to give an alert

Microsoft office products: to store data

2.1.4 Communication Interfaces

Communication between system is done through the Wi-Fi connections and TCP/IP protocol.

2.1.5 Memory Constraints

In this system, there will be a continuous rotation of data. Thus, 260GB of hard disk and 2GB of RAM are required.

2.1.6 Operation

Recording mode: in this mode, the system will be recording the area.

2.1.7 Site Adaptation Requirement

To install this system, we must make sure that it is placed at some height for example on poles.

2.2 Product Functions

Edit data: in this function, users can add, modify, and delete data from the database.

Edit users: in this function, Admin can enter details of personnel who can use this system.

Search: in this function, users can search for any data.

Mails: in this function, you can see emails, that were sent from the system as an alert.

Backup: in this function, you will see data for the last 45 days.

2.3 User Characteristic

User must have some technical knowledge so that he can solve any disturbance if occurs.

2.4 Constraints

The operating system should be Windows XP or advanced. The memory should be 2GB.

2.5 Assumptions and Dependencies

Climate should not be harsh all the time.

24x7 internet facilities

No power failure

There will be one person monitoring the system.

2.6 Apportioning of Requirement

Requirement will be finished in this version.

3 Specific Requirement

3.1 External interfaces

System Interface: NA

User Interface: NA

Hardware Interface: The user will use a monitor screen or computer for monitoring the footage.

Software Interface: This system will use Windows XP or advanced version

Communication Interface: This system will use TCP/IP protocol, and RS-232 standard for serial communication

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3.2 Functions

This Section explains all the functional requirement from a developer's point of view. It is categorized by sub system.

3.2.1 Allow user to enter the system

Description	System should allow user to enter in to the system
Sequence of the operation	1. Enter the system through emails or phone.
Validity check	User should enter the system at the initial stage or when it is restarted.
Input	Registered ID or Password.
Output	If login is done by user than it will start working and computer will start showing the recording.
Error handling	If user or password is incorrect then error message will display

Happy Path:

- Person detected
- Features extraction
- Database searching
- Features match
- Alerts send
- Person identified

3.3 Performance Requirements

One user must always present to monitor the screen and to check for alert, internet speed should be high, the generator should be there in case of power failures.

3.4 Logical Database Requirement

The system shall store the data of the criminals. It includes criminal's information like,

1. Photo,
2. Name,
3. Age,
4. Address,
5. Contact details,

6. Physical details like height, skin tone, and
7. His last public location.

This information will be stored in the database until the user modifies it.

3.5 Design Constraints

This system is suitable for Windows XP or advanced Operating System.

This system must need 2GB of memory.

It may identify the wrong person.

3.6 Software System Attributes

Reliability: This system should run continuously without any disturbance for 9 months.

Portability: The system should be portable enough to install a designated area.

4 Appendices

NA