

INTELLIGENT CCTV SYSTEM (I.C.S) FOR ATM

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ABSTRACT

Intelligent CCTV and video-based detection systems for security and policing purposes. This project describes the system which is capable to detect face and mask which is present on the face while achieving higher accuracy and detection rates. The key contribution is to discriminate between face and mask and on the basis of result it does the some actions. To implement it we can use various techniques. Here we discuss two approaches for implementation as given below. In first approach i.e. for comparison we have required to store number of face patterns masks patterns in computer system and then comparing those patterns with CCTV image. If mask is detected on persons face then the door of the ATM gets locked and SMS or call is generated on authorized person's mobile number. In second approach i.e. with face detection method, we design system such that initially it asks person to show his face in front of CCTV. If face is detected then everything is ok if not siren/alarm starts. In short we are going to design the CCTV as an Intelligent CCTV system. System has broad scope in future. We can also implement activity detector in this if suspicious activity is detected then system will does the procedure which is guided by programmer.

Keyword: -Piezoelectric energy, Photovoltaic, CCTV.

1. INTRODUCTION

Closed-Circuit Television (CCTV) cameras have been widely installed on major roads and intersections for the purpose of traffic surveillance and incident monitoring by most transportation agencies. Due to bandwidth limitation, most of the video detection systems only transmit image sequences rather than videos to the data center at time interval from 2 seconds to 300 seconds.

In our day to day life, we frequently listen about robberies and frauds. To avoid such robberies in market places, banks, jewellery shop's etc. We use CCTV (close circuit television) system. But still some of the robberies are happened in front of CCTV's with the help of mask or helmet on face. This makes CCTV's to fail for using protection from robberies. To avoid this drawback of CCTV can we design a system which detects mask or helmet on persons face? Yes, absolutely yes, we can design such kind of system with the help of digital image processing. The system detects mask or helmet by comparing number of database of face pattern stored in system or by using face detection system.

The Asynchronous Transfer Mode (ATM) Network has been evolving as the standard for future networking that is expected to carry voice, real time video and images in addition to the growing volume of computer data. ATM has made the broadband integrated service of digital network a reality. It is a technology that allows total flexibility and efficiency required for high speed multi-service and multi-media networks by providing bandwidth on demand [1]. Another benefit of ATM networks is its extension to a wireless scenario, namely, wireless ATM. WATM can be viewed as a solution for next-generation personal communication networks, or a wireless extension of the ISDN networks, which will support the integrated data transmission with guaranteed Quality of Service (QoS). The strength of the wireless ATM technology will be its ability to support different protocols like ISDN (Integrated Services Digital Network) and Internet protocols

1.1 Motivational

Now days we observe failure of security systems which are used in banks, ATM, and public places. Some high tech robbers' uses wearable mask for robberies, kidnapping, chain snatching. Due to it, many times it is not possible to catch thief or robbers. Below there is given some robberies which are happened in past few years

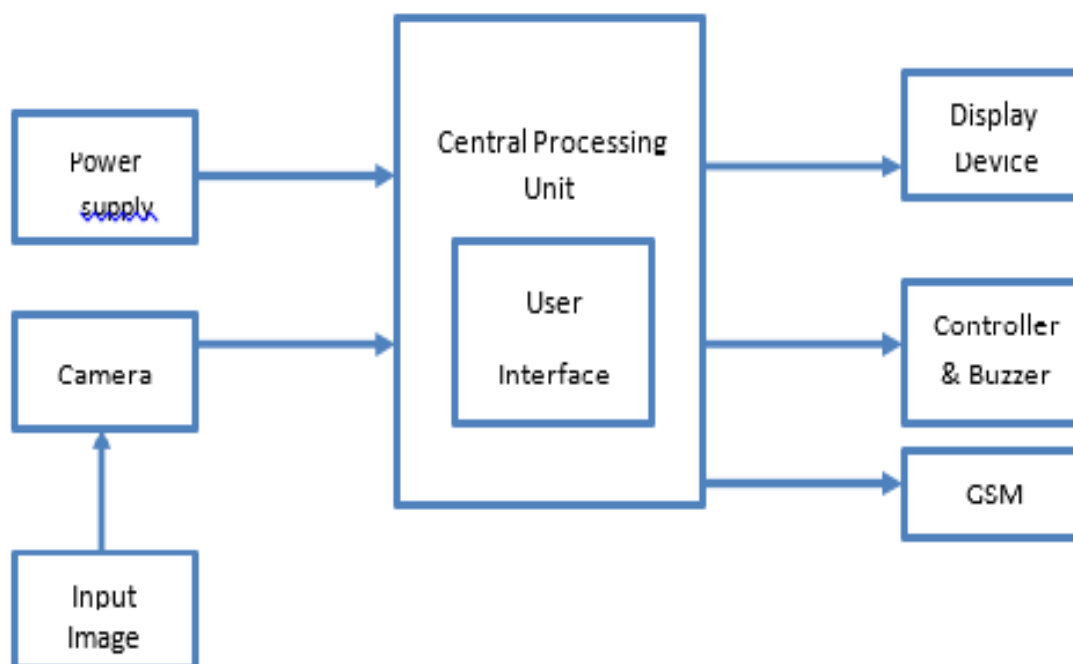


Fig-1: Hardware System design

1.2 Block Diagram

The following is the detailed Block diagram of the system in which the image processing is done through MATLAB. Input image is captured through the camera and then processing is done on image and compared with the database if matched then display on LCD face recognized else not recognized.

1.3 GSM

GSM (Global System for Mobile communication) is a [digital](#) mobile telephony system that is widely used in Europe and other parts of the world. GSM uses a variation of time division multiple access ([TDMA](#)) and is the most widely used of the three digital wireless telephony technologies (TDMA, GSM, and [CDMA](#)). GSM digitizes and compresses data, then sends it down a channel with two other streams of user data, each in its own time slot. It operates at either the 900 [MHz](#) or 1800 MHz frequency band.

1.4 Camera

A camera works with the light of the visible spectrum or with other portions of the electromagnetic spectrum. A still camera is an optical device which creates a single image of an object or scene and records it on an electronic sensor or photographic film. All cameras use the same basic design: light enters an enclosed box through a converging lens/convex lens and an image is recorded on a light-sensitive medium (mainly

a transition metal-halide). A shutter mechanism controls the length of time that light can enter the camera. Most photographic cameras have functions that allow a person to view the scene to be recorded, allow for a desired part of the scene to be in focus, and to control the exposure so that it is not too bright or too dim. A display, often a liquid crystal display (LCD), permits the user to view the scene to be recorded and settings such as ISO speed, exposure, and shutter speed. A movie camera or a video camera operates similarly to a still camera, except it records a series of static images in rapid succession, commonly at a rate of 24 frames per second. When the images are combined and displayed in order, the illusion of motion is achieved

1.5 Power supply

The block diagram gives the detail description of the proposed system. IC7805 are used to provide power to the circuit. Step-down transformer of rating 12V and 600mA secondary is used to convert high voltage to low voltage level. This system uses regulated 5V, 500mA power supply. 7805 three terminal voltage regulator is used for voltage regulation. Bridge type full wave rectifier is used to rectify the ac output of secondary of 230/12V step down transformer.

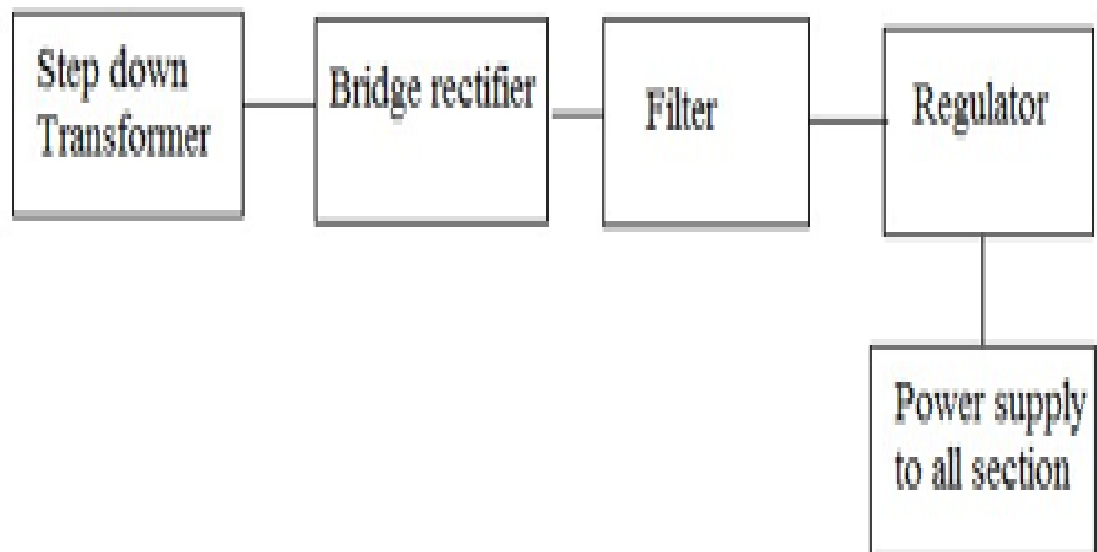


Fig-2: Power Supply

1.6 CCTV

Implementation of CCTV cameras are very costly and has drawbacks since it require constant monitoring of every activity which is not as ease. Continuous manual visualization hampers the productivity and time. Criminals can penetrate into the CCTV system, thereby facilitating criminal acts.

1.7 IP Camera

Implementation of IP cameras are also very costly and not feasible. This system cause major problems as it becomes open to hackers via internet (false bomb threats, called in hoaxers while watching the cameras.)

2. FLOW PROCESS

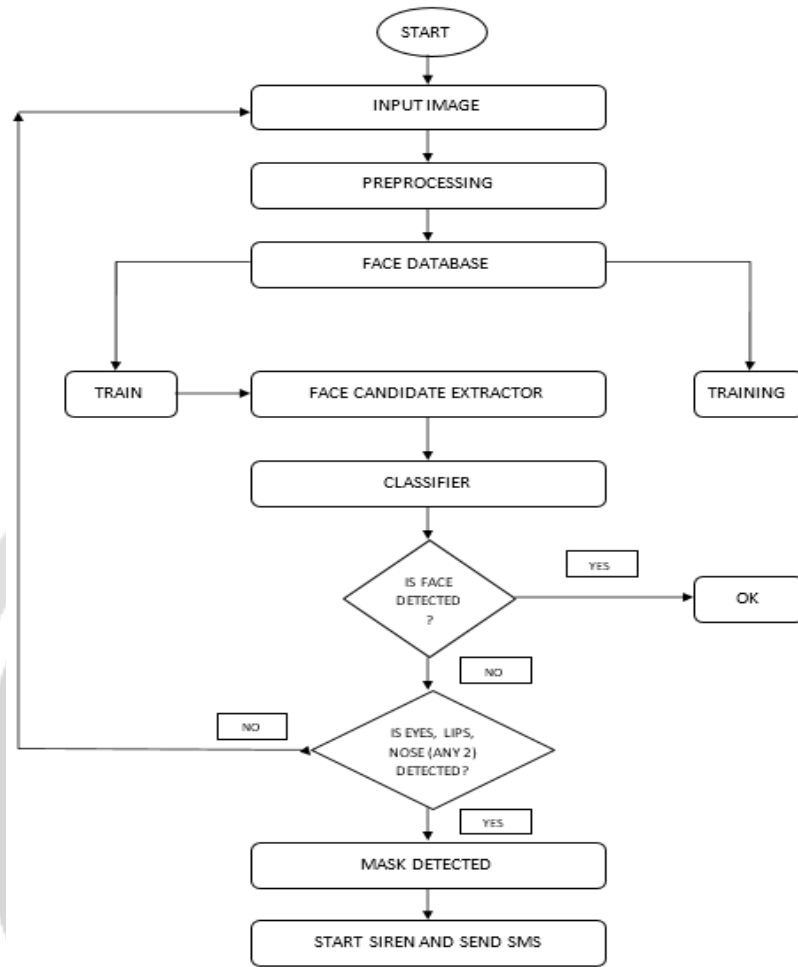


Fig-2: Flow Chart

3. CONCLUSION

In first step of project we only work on face detection as our target is mask detection. A new method for mask detection is proposed, which is based on Viola-Jones algorithm. Till now we discuss number of algorithm but as per storage and computation point of view we found that viola Jones is very high speed computation method with less storage requirement. The experiment results verify the effectiveness of the proposed algorithm. In next stage of our project we design algorithm to discriminate between live person and any non-living statue. The number of features extracted from the training faces directly affects the recognition rate. It is also very sensitive to lighting conditions and the clarity of the images. After Hardware we were work on hardware of project which constitutes programming for PIC16F877A. PIC is used to control display device, buzzer and GSM tool kit. At the last stage of our project the task remain is only the differentiate between mask and face and to design software GUI. At this stage we face many problems related to accuracy and in GUI about use of different software tools.

1. REFERENCES

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