AI Based Surveillance Camera Control System

Manjunatha Siddappa[1], Vankadaru. Sai Gayathri[2]

[1]Assistant Professor Dept of electronics and Communication, SJC institute of technology, Chickballapur, Karnataka, India
[2]Dept of electronics and communication, SJC institute of technology, Chickaballapur, Karnataka, India
[1]Manjunatha1311.ece@sjcit.ac.in, [2]saigayathrivankadaru@gmail.com

ABSTRACT:

The AI based smart surveillance system is gaining huge attention because of the rise in demand for safety and security. Surveillance system is designed to analyse video, image, and audio or any kind of data automatically without any human involvement. Developments that happened in recent times in the computer vision, sensor devices and Auto ML is playing a keen role in accrediting such

Intelligent system. There are many kinds of surveillance and security systems present in the market, but there is no live decision making and predictive analysis surveillance that is automated self-decision making system which helps

the different public departments like health, fire, police, many more to track and reach the particular location where the incident was happened. Here we provide the AI based intelligence surveillance and the security which analyse and takes the decision immediately by itself.

Keywords: object detection, machine learning, computer vision predictive analysis, behavioural analysis, and AI.

I. INTRODUCTION

Now a days ,the safety is becoming very challenging in the modern era society to stop the issues facing by the people in their life and also their assist which are valuable by illegal handling. As a result the personal social safety and security is having greater importance to protect the personal information of each and every individual also their day to day activities in valuable things. Large amount of closed circuit security camaras with the different modules of sensors, have been designed to developed to monitor the critical infrastructure facilities such as military bases, banking, airports.

Monitoring the security camaras in the manual mode by the human operators is not an efficient solution or not practical as the human resource is expensive and has the limited ability. The AI based smart surveillance system is designed to monitor the environment in infrastructure automatically without human involvement. The various monitoring tasks includes auto detecting and object tracking like human and vehicle. The AI based image processing, techniques play a crucial role in the developing such intelligent and smart system.

Artificial intelligence for video surveillance uses for computer programs that analyses images and audio from the video surveillance camera to identity people, vehicle, objects, attributes and events. The programs works with the helps of computer vision.as we can see in the fig1 Computer vision is a set of mathematical methods or the algorithms that works like series of questions with thousands of reference picture of people in angles, movements and positions which are stored.

Fig 1: The above fig shows example of surveillance camera.

II. LITERATURE SURVEY

The research has been done in development of this   AI-based intelligence surveillance system and some literature is reviewed in the section. The surveillance system previously studied to develop and have the intelligent and automation capabilities like VSAM(video surveillance and monitoring), PRISMATICA(proactive integrated system for security management through institutional technological support and communication). It contains many elements like intelligent camera system, existing CCTV, audio surveillance, transmission system

and main server also.

Artificial intelligent based smart and smart and intelligent system solves all the problems inherent in the video surveillance. It uses as computer vision and the sensors to detect what's happening and what should be done about it. all happens in real time and saves the money. It detect and prevent the report intruders when they are imminent.

The main intention of this paper is to give an detailed information about smart surveillance devices and review the current existing system for each of its processing steps.

The large number of security camera, the intelligent surveillance is a system that has intelligent ability to analyse the surveillance data automatically and take the required actions which is necessary such as generating alarms and warning. The ISS is an multidisciplinary subject that includes computer vision, machine learning, pattern recognition, communication, networking and other areas. It is compatible to make it implemented in various applications and different environments.
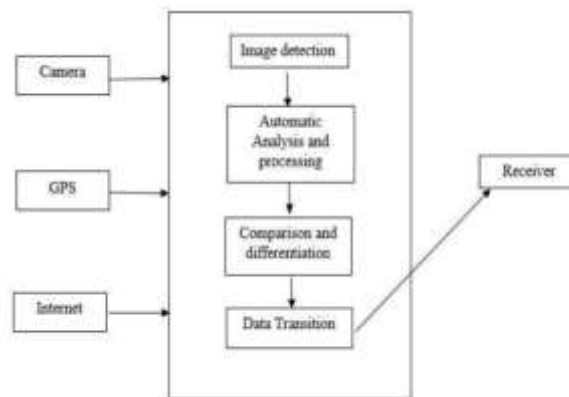
III. PROPOSED SYSTEM

Fig. 2. Schematic diagram of proposed system

In this system first the digital camera captures the video and constantly transmits the information to the microcontroller. Here microcontroller is trained with several video modules which includes numerous situations like accidents, harassments thefts, etc… once the controller gets the information from diagram it continuously analysis information initially to process it based on video type and pixel rate to make video format

To support for the next steps. After processing information, data acquired by the system is compared with trained data modules to differentiate scenario according to the system. After differentiation the information is transmitted to receiver stating the particular situation such as the theft accident and also the harassment is happening in the specific places. The place is detected using GPS module integrated with the microcontroller.

IV. APPLICATIONS

Some of the typical applications are listed below.

- Home security and instruction detection.
- Monitoring the traffic.
- Military surveillance and remote.
- Pedestrian detection and autonomous car.
- Corporations.
- Public areas like university, campus, government buildings etc.
- Public transportation such as bus/train stations, airport etc.

- Perimeter surveillance for headquarters.
- Crown analysis and management.

These programs are used to analyse image, audio, and to identify and detect people, vehicles, objects, specially configured behaviour. This system also uses video surveillance and focus on specific software programs that can loaded to the devices.

V. CONCLUTION

Thus, to monitor a certain territory, record the locations as normal, and detect the specified region, and spy on the thing. And also takes the snaps of the people who comes in and out. The installation of the CC cameras in schools and colleges is important part of maintaining a safe and secure environment for everyone and can also provide effective surveillance to maintain discipline and identity for any suspicious individuals present in the premises. Here fig 3 shows how the objects and everyone where detected.

Fig. 3. Identify the objects

These intelligent devices are to be carried out in numerous environments. Here numerous strategies to address primary processing steps like background and foreground, item detection and item classification, monitoring behaviour evaluation.

VI. REFERENCES

1. J Bhavyasri, Dr. G N Kondanda Ramaiah, Dr. K rasadurai, AI based surveillance control system, international journal of scientific research in engineering and technology, 2023.

2. Ishan kokadwar, Anurag kalkuri, Sayali khare, camara based smart surveillance system, international Journal of Scientific Research in science engineering and technology,2020.

3. A.W.M. Smeulders, Dung M. chu, R. Cucchiara, S. calderara, A. Dehghan and M. shah, Vishal Tracking: an experimental Survey, IEEE Transaction on pattern analysis and Machine Intel 1 igence 36, 2014, 1442-1468.

4. A. Bedagkar -Gala and Shishir K. shah, A survey of approaches and trends in person re-identification, Image and Vision Computing 32, 2014.

5. Csaba Benedek, 3D people surveillance on Range data sequence of a rotating Lidar, Pattern Recognition Letters 50, 2015.