



Background Construction and Optimization for Surveillance Video Processing Using IOT

S.Kumari^a, Hemanth Kumar S^b, Joseph Benny S^c, Joel John Paul S^d

^aAssociate Professor, Department of Information Technology, Panimalar Engineering College

^{b,c,d}Department of Information Technology, Panimalar Engineering College

^a sudhakar.kumari@gmail.com, ^b hemnathhemu2002@gmail.com, ^c josephbenny078@gmail.com, ^d joeljack1000@gmail.com

Abstract: Numerous organizations, for example, banks and safes, presently have CCTV cameras introduced. In any case, the circumstances are consistently recorded by the CCTV cameras. Accordingly, assuming nothing is occurring before the camera, there is futile memory squander. Likewise, the CCTV framework doesn't give cautions of robbery occurring at specific time. In video observation, location of moving items from a video is significant for object discovery, target following, and conduct getting it. The Camera is utilized to get the live pictures of the area wherein it is being executed, assuming that any item is moving. Assuming movement is found in this video, the PC will begin recording, buzz a caution.

Keywords: CCTV, Alert, Burglary

1. Introduction

Everyone is vulnerable in today's society, and situations are unexpected, thus the need for a security system has become unavoidable. However, the data's enormity is making it more difficult to manage. In the past, a large number of discs were employed for data storage. Storage is done in the cloud in today's computerized society. Companies spend a lot of money on data storage.

2. Proposed System

Because of consistent recording, the current security framework, remarkably the notable CCTV, utilizes a great deal of assets like memory. Except if a Human Motion is distinguished, the camera will stay on yet won't store the information. Following that, the photographs are recovered and outlines are created in anticipation of the ensuing handling stages. Utilizing a moving article location strategy, extricate the moving thing and save it to a data set. Whenever a scene changes, an alarm is shipped off an approved person through instant message.

3. System Architecture

A. Input Image Stage:

- Image Acquisition - The first stage of any vision system is the image acquiring stage.
- After the image has been obtained, different methods of processing can be put into the image to carry out the many vision tasks be in need of today.

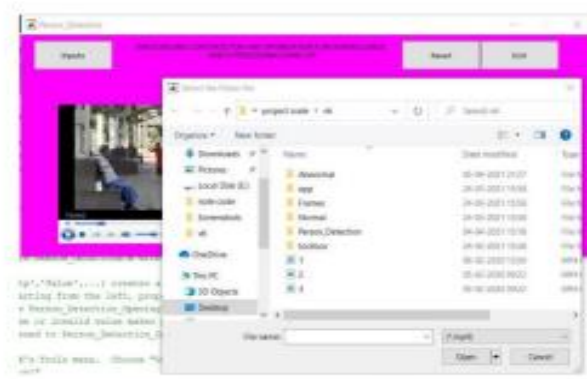


Figure 1: Input Image

B.Preprocessing:

- The pre-handling is the initial step to set up the video for the following stage.
- The pre-handling steps include shading standardization, factual technique, and convolution strategy.



Figure 2: Preprocessing

C.Conversion to Grayscale:

- After the edge extricated from a video is to alter into dim scale for picture handling reason.
- The picture is an assortment of the pixel and each pixel characterized by three unique tones, Red, Green, and Blue.

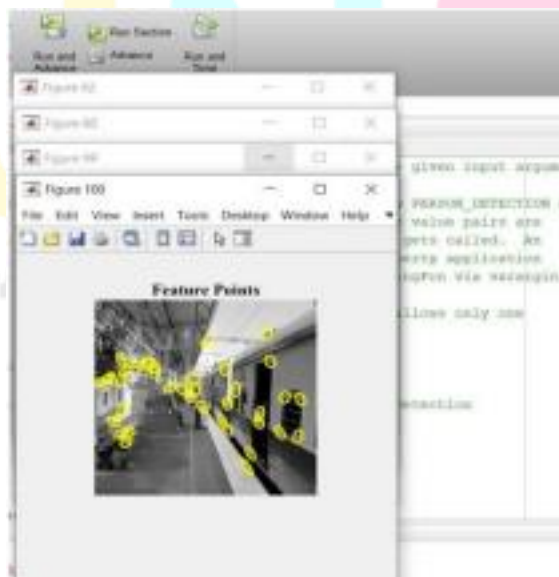


Figure 3: Conversion to Grayscale

D. Background Subtraction:

- The foundation deduction is the technique for eliminating the foundation picture from the genuine picture with the end goal of video successions handling become straightforward.
- It is otherwise called closer view extraction (vehicle, text, human) and utilized for identifying the moving item, the area of interest and so forth.

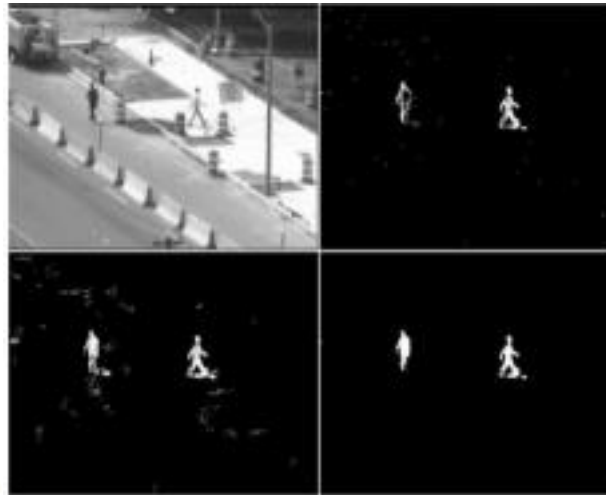
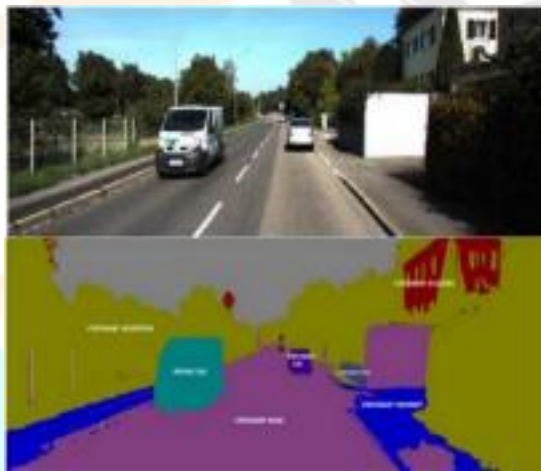
**Figure 4: Background Subtraction****E. Image Segmentation:**

Image segmentation is computer vision techniques in which groups sharing the similar properties, for example, a group having same colour pixels or border and a common shape such as a line, circle or ellipse or polygon.

**Figure 4: Background Subtraction****F. Classification**

- Apply moving item recognition calculation in light of Support Vector Machine strategy.
- Remove the moving item and store it in data set.
- In light of circumstance apply different picture handling methods.
- Compare the outcomes with the generally accessible data set and the subtleties are recovered and alert is emailed.

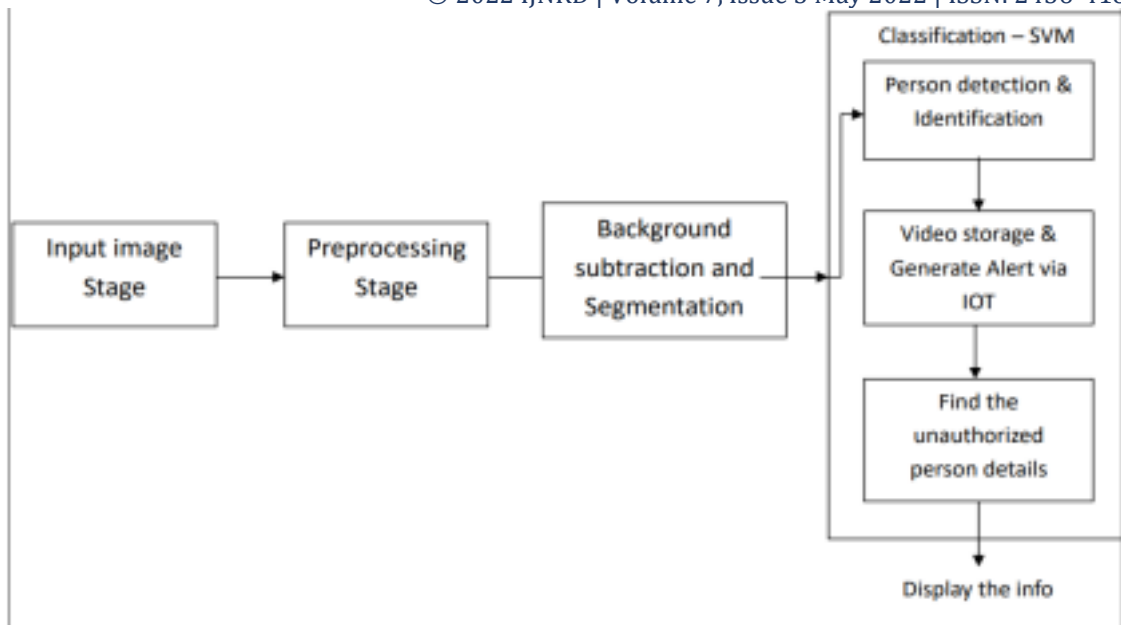


Figure 5: Architecture Diagram

4. Methodology

A. Hardware Requirement

- Storage: 50Mb and above.
- Processor : i5 processor
- RAM : 8 GB Node
- MCU : ESP8266

B. Software Requirement

- WindowsXPearlierversions
- Matlab2019

C. Advantages

- This project saves memory and avoids recording unwanted actions.
- It also sends an alert signal when an intrusion occurs during surveillance.
- It is a cost effective IOT based system.

5. Conclusion

Our paper undertaking addresses a savvy IOT based reconnaissance security framework. The proposed framework assists with distinguishing, report and screen interruption occasions to clients. The acknowledgment then arranges the watchfulness system to make the nearby police base camp mindful of exhort or until the separated thing or amazing approach to acting of the person.

6. Future Work

The tentative arrangement includes accelerate the handling rate and the examination of identified object. Future exploration spotlights to focus on including other video elements like edges, shading and surface

References

- [1] Y. Zheng, X. Zhao, T. Sato, Y. Cao and C. Chang, "Ed-PUF: EventDriven Physical Unclonable Function for Camera Authentication in Reactive Monitoring System," in IEEE Transactions on Information Forensics and Security, vol. 15, pp. 2824-2839, 2020.
- [2] V. Sowmya, D. Govind and K. P. Soman, "Significance of contrast and structure features for an improved color image classification system," 2017 IEEE International Conference on Signal and Image Processing Applications (ICSIPA), Kuching, Malaysia, 2017, pp. 210- 215.

- [3] S. Ghosh, A. Dasgupta and A. Sweta Padma, "A Study on Support Vector Machine based Linear and Non-Linear Pattern Classification," 2019 International Conference on Intelligent Sustainable Systems (ICISS), Palladam, India, 2019, pp. 24-28.
- [4] V. Murugan, V. R. Vijaykumar and S. V. Selvan, "Background subtraction algorithm and image skeletonization based anomaly event detection for low resolution video," 2017 Fourth International Conference on Signal Processing, Communication and Networking (ICSCN), Chennai, India, 2017, pp. 1-6.
- [5] V. S. Rasmi and K. R. Vinothini, "Real time unusual event detection using video surveillance system for enhancing security," in Proc. Online Int. Conf. Green Eng. Technol. (IC-GET), Nov. 2015, pp. 1-4.
- [6] M. Sumithra and S. Malathi, "A Survey of Brain Tumor Segmentation Methods with Different Image Modalities", International Journal of Computer Science Trends and Technology (IJCTST) – Vol. 5 Issue 2, Mar – Apr 2017
- [7] B.Buvaneswari and Dr.T. Kalpalatha Reddy, "High Performance Hybrid Cognitive Framework for Bio-Facial Signal Fusion Processing for the Disease Diagnosis", Measurement, ISSN: 0263-2241, Vol. 140, Pp.89-99, 2019.
- [8] Sharanyaa, S., and M. Shubin Aldo. "Explore places you travel using Android." In *2016 International Conference on Electrical, Electronics, and Optimization Techniques (ICEEOT)*, pp. 4796-4799. IEEE, 2016.
- [9] K. Sridharan, and Dr. M. Chitra, "Proficient Information Retrieval Using Trust Based Search On Expert And Knowledge Users Query Formulation System, Australian Journal of Basic and Applied Sciences, 9(23) July 2015, Pages: 755-765.

