AUTOMOBILE SURVEILLANCE AND SECURITY ESTABLISHMENT FOR SMART CITIES

Project Reference No.: *45S_BE_4029*

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Keywords: Image Processing, Scanning, OCR, CV2, Raspberry Pie, Number Plates, Tesseract, CSV

Introduction:

Our nation is moving towards setting up smart cities by modernizing the architecture of the city. But some locations of the city are more important if they possess the heritage or contain vital resources. Hence it becomes very important to watch those locations and track the vehicles which travel in and out of those locations. The aim is to prevent the potential threat by intruders by securing the location and tracking the vehicles. Cameras are common devices in this modern-day world and the technology has made it very easy to process the captured images. The images captured can be analyzed to prevent a breach in security of the institution.

Each year, there are more than 900 terrorist incidents in India and more than 70% of those incidents include an automobile moving in and out of the vicinity multiple times a day (source: Wikipedia).

The security forces are working hard to prevent these attacks and this establishment can be a good assistance to the forces. It is possible to prevent these threats by tracking the movement of automobiles in that area. The surveillance of the possible target locations of the city can be done using this project. The IEDs (Improvised Explosive Devices) are carried in the automobiles to prevent suspicion and are a major threat for the society. By tracking the vehicles, we can prevent these kinds of attacks. Not just terrorist attacks, even all kinds of illegal activities which include logistics can be prevented by this security establishment. It provides data about the traffic of a location and that information can be used to improve the parking space in that area.

Objectives:

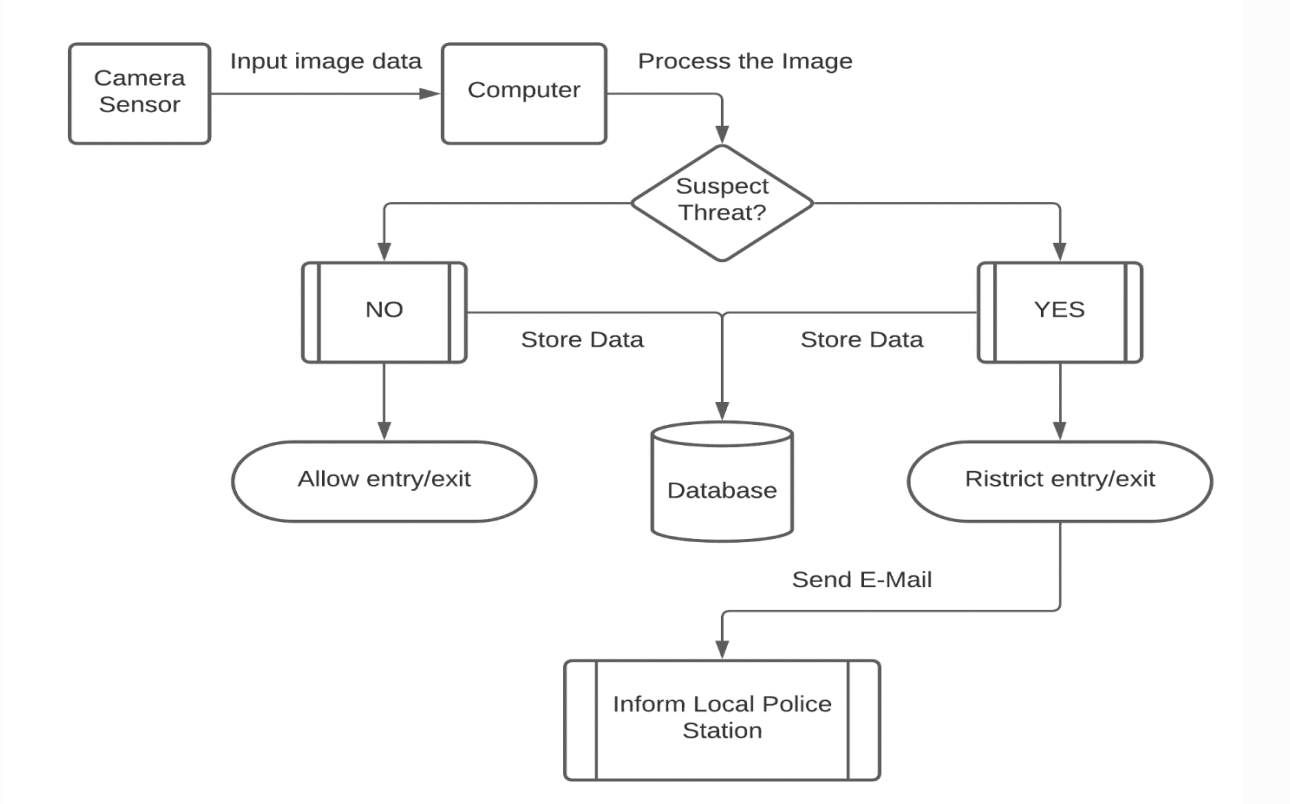
- To track the vehicles that enter/exit a place of importance in a City or a region.
- To pin point to a location where the vehicle is present in real time.
- To alert the nearby police station at the time of suspicion about the vehicle and to get immediate help.

- To keep a log of each vehicle that's been captured in the camera sensors.
- To record the time at which the vehicle enters/exits the location. So, at the time of theft, it is very easy to estimate where all the vehicle has traveled.

Methodology:

The major components of this security establishment are camera sensors and a computer. The images captured by the camera are sent to the computer for processing. The computer analyses the images and detects the registration number of the vehicle by using CV2 and tesseract. If that vehicle is entering the location for the first time, the details of that vehicle will be saved in the database. If the vehicle has previously visited the location, the authenticity of that vehicle will be cross checked with the database.

The police can provide the records of stolen or illegal vehicles to this security establishment. If the vehicle has no criminal records with the previous Encounters at the location and the police provided database, that vehicle will be allowed to enter the location. If the vehicle raises A Red flag, the entry will be restricted and an e-mail will be sent to the local police station.



Overview of proposed model

Result and Conclusion:

Hassle free gateway passage: The vehicles of the trustworthy parties will be given hassle free entry at the city check points

Tracking of all vehicles: All vehicles are being tracked and the data will be stored and shared with the other smart cities for further use of the data sets.

Prevention of Duplicate Number Plates: If two of the same number plates are detected in multiple smart cities at the same time, the activity can be detected as one of the plates is duplicate.

Alert before Impact: Unusual parking activity can be detected by noticing the lack of exit instance of the vehicle.

Prevention of IED Blasts: When we have all the data of all commuting vehicles, we have a very good chance of detecting unusual activities among them which might cause danger to the society.

Future Scope: As India is aiming to build hundreds of smart cities in the coming years, this project will help in maintaining the traffic and will help keeping the city secure. The project will enable the city to detect the potential threats before hand and also avoid the threats. The city will have the data of all the vehicles entering and exiting the city and also at the hot spots of the city.

For a huge smart city network, Camera sensors are extensively installed. Hence this project will already have the infrastructure ready for implementation. At successful completion of this project, we are planning to take this to the large scale where every smart city recommends such system in their smart city program.