

Smart Holster Using IOT

Nusrat Ansari¹, Archit Bandarkar², Anuprita Sawant³, Abhed Mhatre⁴, Varsha Gole⁵

^{1, 2, 3, 4, 5}Electronics and Telecommunication Engineering, Vivekanand Education Society's Institute of Technology, Mumbai, Maharashtra, India

Abstract— In this paper, we proposed a Smart Holster Using IoT which can track the activities of police officers. Nowadays the false cases or the assaults on the police officers are increasing causing the problem to police and law department. There are the false cases of misusing the gun. The existing holster is just used to keep (support) the gun whereas our proposed approach will make the holster smart in a way to make a better life for officer.

Keywords— ESP8266: GSM: Holster: IoT.

I. INTRODUCTION

In most police shootings, officers don't shoot in anger, frustration or hatred. To solve the issues mentioned above like false assaults on police officers and increasing crimes in the city we have developed a project 'Smart Holster'. Our project aims at providing justice to the police officers against such assaults and to have a track of the daily activities of the police officers. This project will tremendously help them to solve a case clear enough. All their actions will be transparent and will help them to maintain record of it. So this helps us to build trust on law and force department and maintain the gap between a civilian and policeman.

II. LITERATURE SURVEY

A. GSM

It is an advanced cell innovation. GSM stands for Global System for Mobile Communication. It is used for transmitting voice and other information administrations or data services. This makes a use of narrowband Time Division Multiple Access (TDMA) to transmit information over a cell phone. In this framework the size of each channel is 200khz. Operates at the frequency band of 850Mhz, 900Mhz, 1800Mhz and 1900Mhz. GSM Module is used to establish connection between device (like computer) and GSM module. It requires a SIM (Subscriber Identity Module) card to communicate with the network.

It can perform the following functions:

- Send, receive SMS in a cell.
- Make, reject a call.

B. GPS

GPS stands for global positioning system. By using this position can be obtained from anywhere in the world. GPS unit receives the signal from satellite to determine the location. This signal contains the information of latitude, longitude and altitude.

C. Nodemcu

Nodemcu is the heart of our project. It is the control unit. All sensors are get control by it.

Nodemcu (ESP8266) is the wifi equation of ethernet module. It combines the features of wifi access point and station plus microcontroller. These features make the Nodemcu extremely powerful tool for wifi network. It can be use as access point or station and host a web server or connect to internet to fetch or upload data. It can be programmed with a Arduino IDE or 'C' language.

III. PROPOSED SYSTEM

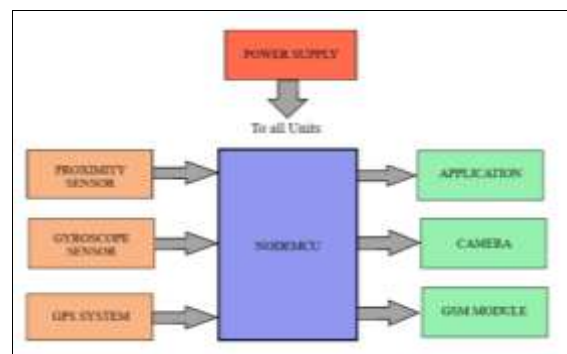


Fig. 1. Block Diagram of Smart Holster System

The proposed model of the smart holster system is shown in the figure above. In this proposed model, the activities of the police officer is tracked. This will be done using nodemcu. If the officer opens the cap of the holster then the danger signal will be sent to the hub using magnetic sensor and GSM. Proximity sensor will detect the gun is present in the holster or not. If the gun is removed from holster then the specific signal will be sent to the hub. Using gyroscope sensor the orientation of officer is tracked. If officer falls down due to any attack then the alert signal will be sent using GSM module. To keep the eye on officer and track its location continuously, GPS module is used. It will continuously update the location of officer on an application. Camera will be placed on the belt of officer. It will start recording as soon as the officer removes the gun from holster. All this information is displayed on the developed app.

Smart holster system functions:

- Track the activities of officer.
- To check if the Cap of the holster is open or close.
- Position of the officer.
- To check is gun in the holster or not.
- Recording through camera.
- Sent all the information on app.

IV. RESULTS

We have performed the location detection of officer and also whether officer has reached to the gun or not using

nodemcu, GPS, magnetic sensor and GSM. Given figure shown the implementation and output.

A. Message Notification:

Figure 2 shows the message received on hub when officer reaches to the gun. Basically, magnetic sensor is used at the cap of holster. When magnetic sensor gives trigger to the GSM module that cap is opened, GSM module sends the message “Emergency, Officer has reached for his gun” to the hub.

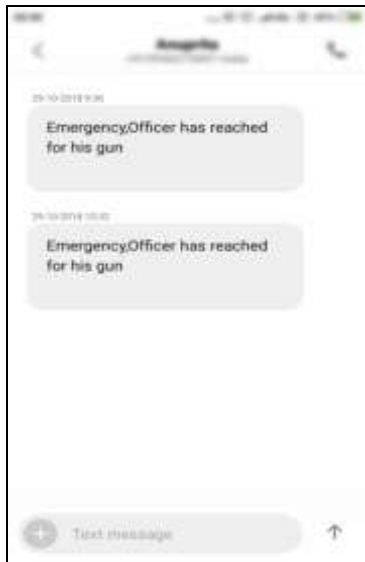


Fig. 2. Message Sent to the Hub

B. Location

Figure 3 shows the detected location of officer. Gps module is connected to the nodemcu. When officer will remove the gun from holster, it will trigger the gps module to detect the location of officer.

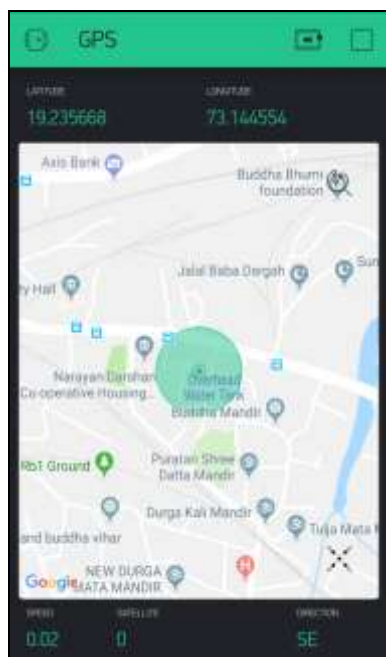


Fig. 3. Location Detection of Officer

V. CONCLUSION

A. Advantages:

1. It will track the activities of police officer.
2. In any emergency, message will be sent to the hub.
3. The work of law and force department will be simplified due to the use of smart holster.
4. The crime ratio of the city can be monitored by observing the database of daily activities.

B. Disadvantages:

1. GSM problem can affect the working.
2. Blockage of camera lens can create problem in recording.
3. Overall system is not water resistant.

C. Conclusion

The Internet of Things does play a major role in the overall digitization of the holster. The Smart Holster will make the life much easier of the police department. Also, as the daily activities of a policeman can be tracked it will help to determine the crime ratio in the city. With the help of GSM and IoT these activities will be continuously monitored along with live location tracking of the officer. So thus by using simple protocols the overall work of the law and force department can be efficiently improved which will indirectly help us improvise and control the crimes in the city. Thus ‘Smart Holster’ will be one of the great invention for the police department.

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AUTHORS

First Author- Mrs. Nusrat Ansari, Assistant Professor, M.E. in Electronics and Telecommunication Engineering, Vivekanand Education Society’s Institute of Technology, Mumbai, India, nusrat.ansari@ves.ac.in
Second Author – Archit Bandarkar, B.E. in Electronics and Telecommunication Engineering, Vivekanand Education Society’s Institute of Technology, Mumbai, India, 2015archit.Bandarkar@ves.ac.in
Third Author - Anuprita Sawant, B.E. in Electronics and Telecommunication Engineering, Vivekanand Education Society’s Institute of Technology, Mumbai, India,



2015anuprita.sawant@ves.ac.in

Fourth Author- Abhed Mhatre, B.E. in Electronics and Telecommunication Engineering, Vivekanand Education Society's Institute of Technology, Mumbai, India,
2015abhed.mhatre@ves.ac.in

Fifth Author- Varsha Gole, B.E. in Electronics and Telecommunication Engineering, Vivekanand Education Society's Institute of Technology Mumbai, India,
2015varsha.gole@ves.ac.in