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BIKE THEFT DETECTION SYSTEM

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Abstract: **Security is primary concern everywhere and for everyone. This paper proposes an electronic security system for motor bikes. After parking the bike the owner has to press the remote button to activate the security system, once the system is activated it will prevent the bike to start until the system is being deactivated. To start the ignition system the user will be asked to press the remote. After pressing the button relay will activate the ignition system and user can access his bike. If anyone tries to start the bike without deactivating the system, the security system sends the message to user's mobile using GSM module. Also there is a camera near to speedometer which will capture the image of the suspect and store it in flash memory which can be retrieved by the user. User can ON/OFF the system only when required. In order to start the ignition system user will be asked to press the remote button.**

Keywords: *Raspberry-pi, GSM module, GPS module, power supply.*

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I INTRODUCTION

The system "Bike Anti-Theft Detection" as the title suggests is aimed to construct a system that will completely protect the bike from being theft. General objective of this paper is to eliminate the need of being physically present in any location for security of the bike.

A security system is essential for motorist as the number of motorcycle theft increases every year. Various security systems are available in the market with variety of functions, operating modes and features. Most of the systems are expensive.

This makes security system which offers excellent protection to your vehicle by using GPS and GSM is effective one. The main aim of the system is to design and develop an advanced bike locking system in the real time environment.

Now days the alarm systems in the market are very sensitive which makes many false alarms. Also,in the current system, the vibrate sensor or shock sensor are used as a main sensor. The false alarm will increase if anyone touches the motorcycle, the alarm will trigger easily even though they do not have any senses of stealing. So, by doing this project, bike anti-theft system will reduce the false alarm. After parking the bike owner has to press the remote button to activate the security system, once the system is activated it will prevent the bike to start until the system is being

deactivated. When the system is being activated a metal rod is inserted within the spokes of wheel which will prevent the bike to move. In order to start the ignition system user will be asked to press remote. If anyone tries to start the bike without deactivating the system, the security system sends the message and image of that person to user's mobile using GSM module in first time only.Also there is a camera near to speedometer which will capture the image of the suspect and store it in flash memory which will be retrieved by the user. If thief tries to damage the system or to remove glass cover then switch gets open & system will sound the buzzer. Only User can ON/OFF the system when required.

II RELATED WORK

In some previous research works, the authors have given some analytical view of the circuit which is used in the various projects; while in some other global positioning system (GPS) is commonly used as global navigation satellite system is used to locate the vehicles and also to stop the vehicle if stolen.

Every person's wish is to be secure his home, industry, valuable belongings such as bikes, cars etc. to be secured. Would you ever consider leaving thousands of rupees worth of your personal belongings in the street without protection? Well, that is what you do every time you

park your car/bike at the side of the road or anywhere else if you do not have a bike/car security alarm fitted to it.

Most bikes/cars do not come with an effective protection system, and a determined thief is generally able to steal a car/bike in a matter of seconds. Our project proposes an electronic security system for motor bikes. Alarm systems that have in the market nowadays are very sensitive and make many false alarms. Also, the current system, use a vibrate sensor or shock sensor as a main sensor. The false alarm will increase because if anyone touches the motorcycle, the alarm will trigger easily even though they do not have any senses of stealing. So, by doing this project, bike anti-theft system will reduce the false alarm as one of the objective.

Sr no	Paper Name &Year	Author Name	Abstract	Methodology	Conclusion	Disadvantage
1	Advanced Vehicle System, IEEE 2015 [1]	Bavyar, Mohanamurari	This complete system is designed for providing security by using GSM & GPS modules	Accelerometer system is used for Detection.	After updating this setup it makes more efficient.	Here this system 8051 microcontroller is used.
2	Improving motorcycle antitheft system with the use of Bluetooth low energy 4.0,IEEE 2016. [2]	WittayaaKaadtalaingThaksaingSangsuwan	MATS is implemented by using BLE 4.0 which has a combination of Arduino board which has function of MAC address	We have implemented MATS under the method of using RFID ,BLE 4.0	In this MATS we used Anti key lost device to work as BLE tags & implemented BLE tags reader to detect MAC.	It depends on accura of RFID Key tags detection . Its lower than BLE detection
3	Next Generation Auto theft Prevention & tracking system for Land Vehicles, 2014 [3]	Jacques Georgy,Ruiz exu	This system uses remote keyless entry system.	This system is implemented by using Gravitational Lock is used to prevent theft by providing air gesture key & we have used inertial navigation sensor.	It describes an air gesture recognition system by using MEMS accelerometer	GPS fencing notifies the system only the vehicles which are out of prohibited areas. Ex blast zones,
4	Automobile Antitheft System Based on GSM & GPS module,2012	Hu jian – ming, Li Guang-hui	It's totally a design view which depends on GPS & GSM Module	It is implemented by using vibration sensor & GPS & GSM module.	We had tested,received GSM signal that its good. It can develop.	In this GPS module communicates only with MCU by data line of RXD & TXD because of serial port communication adopted .

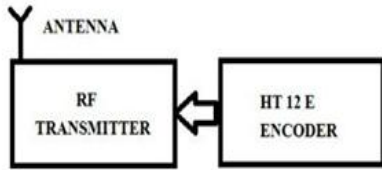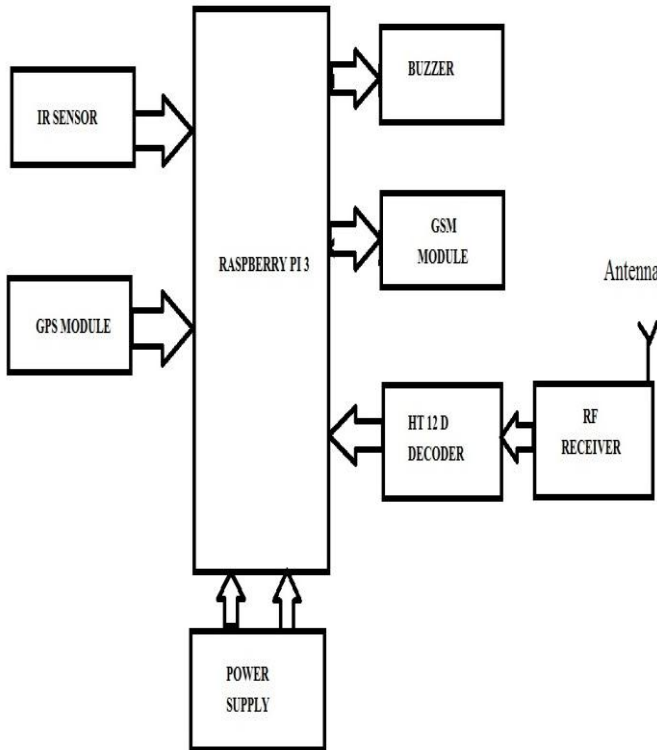### III IMPLEMENTATION

Figure 1: TRANSMITTER

Figure 2: RECEIVER

The user has to press the remote button to activate the security system, once the system is activated it will prevent the bike to start until the system is being deactivated. In order to start the ignition system user will be asked to press remote. If anyone tries to start the bike without deactivating the system, the security system sends the message to user's mobile using GSM module. Also there is a camera near to speedometer which will capture the image of the suspect and store it in flash memory which will be retrieved by the user. User can ON/OFF the system only when required. In order to start the ignition system user will be asked to press the remote button. After pressing the button relay will activate the ignition system and user can access his bike.

RF Transmitter: - After pressing the remote button RF Transmitter transmits the signal to RF Receiver after the signal is being encoded by the Encoder through antenna.

RF Receiver: - Receiver will receive the signal in encoded form and then given to the RF Decoder where it is being decoded. And the decoded signal is given to the controller.

Relay Driver: - The circuit used for driving a relay can be termed as a relay driver circuit and it can be designed using various IC. This relays are needed to be drive for activating or to turn ON. So relays require some driver circuitry to turn ON/OFF.

Relay: - Relays are the component which allows a low power circuit to switch a relatively high current ON & OFF, or to control signal that must be electrically isolated from the controlling circuit itself. Relay is used to connect & disconnect the battery and spark plug respectively.

Camera: - Camera will capture the image of the suspect, If someone tries to put the duplicate keys. Image will be saved in flash memory which can be retrieved later

. GSM: - If someone tries to put the duplicate keys, then controller will give the command to GSM and through GSM message will be sent to owner and also image will be send at moblie.

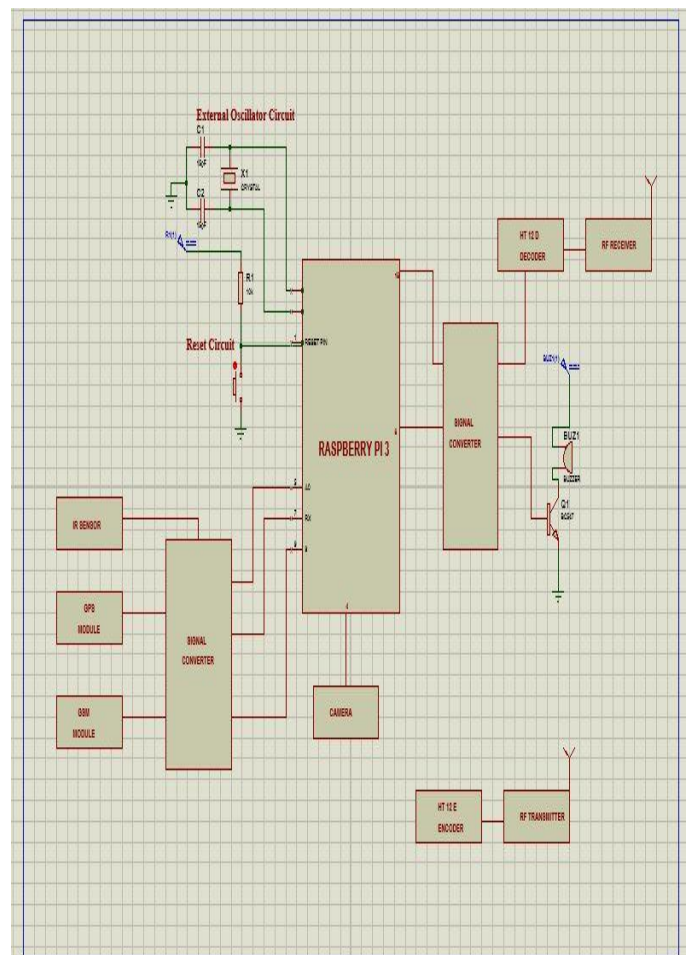GPS: - Through GPS we can track the location of the bike, if bike has been stolen.
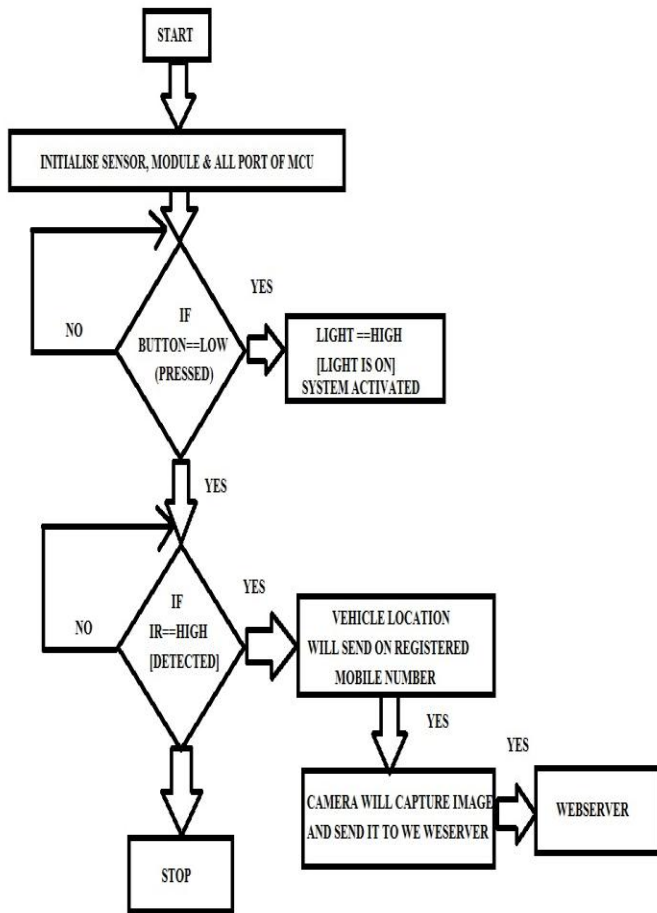

Figure 3: Implementation

V FLOWCHART

Figure 4: Flowchart
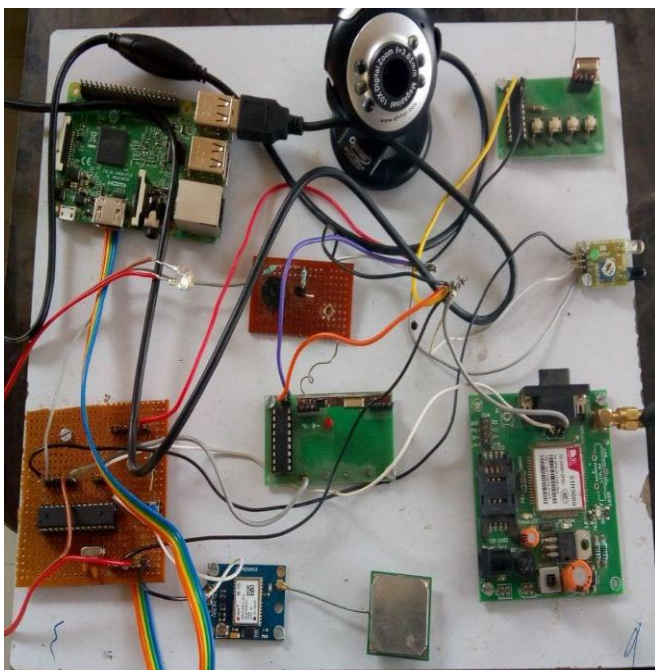
VI HARDWARE

Figure 5: Hardware

Figure 6: Antenna

VII RESULT

Figure 7: Result

VIII CONCLUSION

Our proposed GSM/GPS based Bike Anti-Theft Detection is the advanced and reliable version of security mechanism for two wheeler vehicles.

When the theft of the bike is identified, the SMS & Image of suspect will be saved in flash memory which can be seen by the user. Even if the bike has been stolen we can easily track the vehicle by using GPS.

It is cost-effective system, which can be expected to drastically reduce the automobile thefts and are entirely feasible as factory installed devices.

REFRENCES

[1] 'Pritpal Singh,Tanjot Sethi, Balabantaray, Bunil kumar Bibhuti Bhushan Biswal ; "Advanced Vehicle Security System" ,IEEE sponsored 2nd International Conference on innovations embedded 15.

[2] Hu jian –ming, Li jie, Li Guang-hui "Automobile Antitheft system. Based on GSM & GPS modems" ,5th International conference on intelligent networks & systems'15

[3] Pripal singh, Tanjot sethi, Bunil kumar Balabantaray, Bibhuti bhushan, Biswal "Advanced Vehicle Security System" IEEE sponsored 2nd international conference on

innovations in information embedded & communication systems ICIIECS' 15.

[4] Ashwini patil, Shobha mondhe,Tejshri Ahire,Gaytri Sonar,Das ".Auto-Theft Detection Using Raspberry PI & Android App" international journal for research in engineering application & management'16.

[5] Wittayaa Koodtalang, Thaksaing Sangsuwan "Improving motorcycle Antitheft System with the use of Bluetooth Low Energy2.0" (IEEE), 2016.