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Smart Lock for Hostel Based on IOT

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Abstract: Conceptual Security has systematically been a major worry to the overall public either within the family units or the geographic point condition. There are totally different methodologies originated to deal with these problems. This venture is planned to create up a savvy lockup framework utilizing the Internet of Things. Utilizing standard keyed locks is basic since the long time ago, anyway there is a high risk of keys being lost or going in inappropriate hands. Later, several people like biometric locks over ancient keyed locks to enhance the safety of their baggage. In distinction to the traditional lock, an up-to-date biometric lock needs no key and instead uses a biometric sensing element. Our project is node MCU based mostly adaptable operating device that gives physical security utilizing the biometric sensing element that is accessible in an exceedingly smartphone. The planned technique during this study uses the IOT technology and therefore the application of smartphone communication technology to standard device (smart lock for bags) to open or shut a bag remotely through authentication. Above all, this study proposes the sensible Smart Lock for Bag System primarily based on security for the protection issue caused by the physical key utilized in remote-controlled automation machines, like ATMs, KIOSKS, and marketing machines.

Keywords: Internet of Things, Arduino, Smart lock, GPS module.

I. INTRODUCTION

Now a day's individuals face a lot of issues concerning security. Security is that the most essential issue within the world, the most purpose of this paper is to style and implement a locker with high security system supported Fingerprint and Image process technology which might be organized in bank, hotels, secured offices, hostels and houses. During this system solely authentic person will open the lock. We've enforced a locker security system supported finger print and Image process technology containing door lockup system which might activate, evidence, and validate the user and unlock the door in real time for locker secure access[1,2].

Thinking of a baggage that tracks its location, that follows the user automatically or manually, by the little bit of the present technology to the recent baggage it ought to bring out its true potential. This has driven to do to the analysis all along so as that it is simple, eco-friendly and can be operated by a Smartphone. We've developed and designed a merchandise carriers to be reliable whereas transporting or throughout any occasion where we've an inclination to use baggage carriers. The GPS device is utilized to trace the luggage carrier. It may follow the owner and straightforward interaction [3].

Ultrasonic detector is employed for the detection of human. In terms of privacy the bag may be activated by owner's identity and additionally GPS and GSM square measure wont to track the placement. During this bag among a tiny low platform all the facilities square measure enforced along expeditiously. Good locks permit users to access to a 3rd party meaning of a virtual key. This key may be sent to the recipient mobile by exploitation normal electronic communication protocols like e-mail or SMS. Once this key's received by the receiver are ready to unlock the good lock throughout the time antecedently such that by the sender [4,5].

II. PROPOSED SYSTEM

There are a various applications to manage the luggage however all of them don't seem to be controlled from the baggage instead the commands are sent from the mobile phone to the luggage via Machine to machine communication. The mobile contains a pre-installed application with a collection of directions. They look ahead to the user to send the commands. When the microcontroller embedded within the baggage receives instruction from the user it acts consequently. This will either be for tracing its location or show it on application or send the luggage weight conjointly the charge of the batteries and there are such a lot of options that makes a bag sensible.

III. LITERATURE REVIEW

- Fingerprint lock system:

As Fingerprints are the formation of ridges through the combination of genetics and environmental factors, fingerprint lock gives access to only that person whose fingerprint is already stored in the memory. Therefore hacking of password or PIN is not possible. Also, user don't need to remember combination of PINs and passwords. Even in the situations like power failure or battery drainage, stored fingerprints can be retained [1].

- Track dot as the luggage tracker:

Track dot is the device used to track the luggage by placing it inside the bag whenever the bag is in use. The microelectronics and ground-based cellular technologies are used in this device. At the time of airplane take-off, this device automatically shuts down and switches to an airplane mode and when applied brakes at the time of landing the airplane, it gets activated again. But this device is very costly and also not available in India. It is major issue is, it does not provide quick and timely notifications at the time of theft or bag lost. This paper explains that how this smart lock will give relief to hostel students from bag safety related problems. This proposed work shows the feasibility of developing smart lock for bags of hostel students based on IoT [2].

1) Smart Bag with Theft Prevention and Real Time Tracking.

Data taken from ultrasonic and IR sensor. To perform the following mechanism, the two IR sensors are used. Two receivers are placed at both the ends on one side of the bag. At the centre, one transmitter is placed. The action is detected by the two IR receivers placed at the corners of the bag whenever the person turns left or right. To measure distance between bag and human by sending sound waves and collects the reflected waves when it tracks an obstacle ultrasonic sensor is used. GPS and GSM is used for tracking bag's location. Mislays or losing of bag is also avoidable using proximity detection method. Fingerprint lock system is used in this project. Only those peoples can get access to open bag whose fingerprints are already stored in the memory. Even in the event of complete power failure or battery drain, the stored fingerprints can be retained and hence one do not need to keep track of keys or remembering a combination password, or PIN. For charging of mobile phones and laptops Recharging port is also provided in this project as an in built power bank. Several techniques are introduced for different features like human detection which has done by ultrasonic sensors. Owner's identity is used with which the bag can be activated. In this bag, all the facilities are implemented together efficiently within a small platform [1].

2) Luggage Tracking System using IOT

The other components of the system are connected to GPS (Global Positioning System) module, alarm and an Arduino board. The location of the bag can be traced by using synchronized map. An alarm notifies the user about passing of the bag beyond the particular range from its owner. Alarm would help the user to track the bag but if bag crosses the map area fed into the server, user cannot trace the bag. The hardware of the tracking system would be included in the luggage bag or we can also say the device for tracking the bag with the help of which we would be tracking the bag. Also there would be an alarm connected to the device and whenever the owner gets away from the bags or reaches out of the particular range and area the alarm would ring. The map is also made available for this purpose using Google geo location API. In this we can track the bag once it gets away from the owner through the area which has been set and predefined. We can see the location of the bag on the map as the markers are dropped with the help of which we can get the location of the bag as bag moves away from the owner. Also there are some flags for range has been set. On the map these flags will notify about the distance between the bag and the owner like "under 20m", "under 30m" to the owner [2].

3) Design of Bag Monitoring Security System Based On Internet of Things

Most common belongings that lost, stolen, drop, or not monitored due to our activity are wallet, suitcase, and bag. If those item taken, impossible will retrieve back. Bag watching security system based on Internet of Things may be a resolution for acknowledge of bag condition. The proposed method, uses an android based remote bag system, which will provide elective, real-time bag location and the bag can be tracked down easily using this feature. Is our bag open or shut, whether or not it way or close to North American nation, or wherever is that the precise position of our bag on the globe. The advantage here is that, if the bag is lost then the bag can be tracked as the owner can get the message about the location of the bag. This feature is independent as the Global System for Mobile Communication (GSM) module is present in the system. This method is exploitation Arduino as microcontroller, Bluetooth module as distance indicator, sim 800L module to send information to cloud server and create a decision to grant notification of opened bag, If there is any problem with the satellite connections then this could be the disadvantage for the system as the tracking of the bag will not be easier .GPS module to acknowledge bag location, and wire app to show notification of each request to the system. Output of this analysis may be a system that capable to show notification for user with eight second delay notification. Due to the use of satellite connections this could be very expensive. It will going to be one way communication as Short Message Service (SMS) is used [3].

4) Automated Luggage Carrying System

In this paper various methods like Radio Frequency Identification (RFID), smart cards, synchronous rotation of motors and ultrasonic sensors are used. Inside an infrastructure like airport the comfort can be added to the explorer with the help of integument personal luggage carrying system. The system has inclusion of automated vehicles which can be borrowed and designed the way so that inside an infrastructure it can automatically follows the borrower with luggage. The locomotion function used here can make wheels to move

forward and backward, if three wheels rotate right the other three wheels rotate left and vice versa. The distance from the borrower is also maintained and in some of the restricted areas like restroom for comfort it do not follow the borrower. An embedded integrated circuit included in a smart card that is either a microcontroller or a memory chip. The bag can detect the obstacles due to the presence of ultrasonic sensors. It will then automatically move to the docking station for reuse and charging purpose after service. It does not have a mobile application. The basic construction required for the system is identified in this theory. It also states the theory of rigid robot body having six wheels and the basic movement of tracking person. The cost of RFID for long distance is more and if the short range Radio Frequency Identification (RFID) is used then finding the bag will be tedious work. This could be made in use for the smart card holder for airport having provision of traveller's personal luggage carrier[4].

5) Improved Baggage Tracking, Security and Customer Service with RFID in Airline Industry

RFID (Radio frequency identification) is named jointly of the 10 greatest contributive technologies of the twenty first Century. During this paper the frequency Identification (RFID) is used for identification of the baggage and thus the purchasers. The quickly growing market possesses this technology and also the enterprises has associate increasing selection for the utilization of RFID so they'll gain competitive advantage by up the potency of their operations. The frequency Identification (RFID) is connected as tags on bags and at intervals the tickets. Within the aviation business, from the terribly while the chance to adopt RFID for the world of handling baggage are seen by major airports/airlines. At the many airports like U.S., European, and city, several tests are done. The frequency Identification (RFID) readers keep track of the luggage of the purchasers. it's 3 level of testing, they're unit testing for giving associate error-free system, system testing is employed to visualize whether or not the work is compatible and is harmonious to each different and acceptance testing is that the ultimate testing method and so is recommended for the users. Bar codes aren't the maximum amount correct because the RFID tags are found. Additionally the performance of the RFID tags was additionally measured to be than that of the bar codes. It may be enforced solely within the airports for all destinations within the airlines network. The RFID adoption coming up with, design and implementation at a serious airline has bestowed by this paper. This can be accomplished by integration RFID technology along with networking and information technologies [5].

IV. SUMMARY

Sr. No.	Paper Name	Author Name	Year of Publication	Description
1	Smart Bag with Theft Prevention and Real Time Tracking	Ankush Sutar, Tukaram Kocharekar, Piyush Mestry, Prathamesh Sawantdesai, Mrs. Suhasini S. Goilkar.	2018	Several techniques are introduced in this paper for different features like human detection which has done by ultrasonic sensors. Fingerprint locking system is used in this project. For charging of mobile phones and laptops Recharging port is also provided in this project. Owner's identity is used with which the bag can be activated. GPS and GSM is used for tracking bag's location. In this bag, all the facilities are implemented together efficiently within a small platform.
2	Luggage Tracking System Using IoT	Sudha Senthilkumar, Brindha.K, Rathi.R, Charanya. R, Mayank Jain	2017	An alarm is set up with the arduino uno board and a GPS module on the basis of which the luggage tracking system works. As soon as the bag is theft and goes outside a particular range the alarm is turned on. Furthermore, We can track the location of the bag as it moves through the map created, as the bag moves away from the owner the markers are dropped with the help of which we can get the location of the bag. To track the bag, the IoT components like GPS Module and an Arduino Board are being used and a frontend or mobile application is created to monitor all the functioning,
3	Design of Bag Monitoring Security System Based On Internet of Things	Shrinidhi Gindi, Irshad Ansari, Kamal Khan, Farooqui Bilal	2019	The proposed method, uses an android based remote bag system, which will provide elective, real-time bag location and the bag can be tracked down easily using this feature. The advantage here is that, if the bag is lost then the bag can be

				<p>tracked as the owner can get the message about the location of the bag. This feature is independent as the Global System for Mobile Communication (GSM) module is present in the system. If there is any problem with the satellite connections then this could be the disadvantage for the system as the tracking of the bag will not be easier. Due to the use of satellite connections this could be very expensive. It will going to be one way communication as Short Message Service (SMS) is used.</p>
4	Automated Luggage Carrying System	Md. Imran Khan, Saad Bin Siddique, Nazmul Hassan, Md. Towhid Chowdhury	2013	<p>Inside an infrastructure like airport the comfort can be added to the explorer with the help of integument personal luggage carrying system. The system has inclusion of automated vehicles which can be borrowed and designed the way so that inside an infrastructure it can automatically follows the borrower with luggage. The distance from the borrower is also maintained and in some of the restricted areas like restroom for comfort it do not follow the borrower. It will then automatically move to the docking station for reuse and charging purpose after service. The basic construction required for the system is identified in this theory. It also states the theory of rigid robot body having six wheels and the basic movement of tracking person. This could be made in use for the smart card holder for airport having provision of traveller's personal luggage carrier.</p>
5	Improved Baggage Tracking, Security and Customer Service with RFID in Airline Industry	Deepti Mishra, Alok Mishra	2010	<p>RFID (Radio frequency identification) is called as one of the ten greatest contributory technologies of the 21st Century. The rapidly growing market has got this technology and the enterprises has an increasing variety for the employment of RFID so that they can gain competitive advantage by improving the efficiency of their operations. In the aviation industry, from the very long time the opportunity to adopt RFID for the area of handling baggage have been seen by major airports/airlines. At the numerous airports like U.S., European, and Hong Kong, many tests have been done. Bar codes are not as much accurate as the RFID tags have been found. Also the performance of the RFID tags was also measured to be well than that of the bar codes. The RFID adoption planning, architecture and implementation at a major airline has presented by this paper. This is accomplished by integrating RFID technology together with networking and database technologies.</p>

V. CONCLUSION

In this paper, a sensible lock with advanced security feature is meant to figure on the net of Things. Good bag is an innovative keep on grip that creates life easier and power tool. Carrying baggage is that the main problem faced by every and each traveller. Also, we have a tendency to attempt to solve the dragging of baggage problem and additionally providing higher security and intelligent options that appropriate for contemporary era. The built-in power bank will give enough power and at a similar time it shares power to user's gadgets like smartphone, laptops, good watches etc.

The designed good lock senses the impact of an invalid traveller and alerts the user giving notification on the users mobile. It are often utilized in each menage, in workplace or in hotel's to attenuate the human efforts and may save heaps of your time. It nullifies risk of bag keys obtaining lost or purloined. Because the system is on-line, an individual will lock/unlock from anyplace round the world at his own comfort. The logs created, will viewed by any of the registered users in order that they'll check at what time did the person unlocked/locked. During this approach of these things had created the easy bag as good bag that provides nearly overall security of our baggage.

VI. REFERENCES

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