Attendance monitoring Using IOT for transportation Systems

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Abstract—this project is about building up a gadget to screen co-ordinate GPRS based webcam and support attendance framework for school understudies. The reason for the venture is to determine the issues looked in security issues of school transportation offices. Wrong anticipation utilizing remote observing is one of the points of the present investigation. There are a few observing frameworks, for example, camera, CCTV and so on. We give the live camera footage to parents just in case needed. We likewise give notice to the parents by giving vehicle location to parents which can keep the student from missing the school vehicle. It additionally gives the live location of the vehicle to the transport department office, along this monitoring the school vehicle and the guaranteeing the security of the kid. Thist tackles issues like unapproved individual lentering into school vehicles and furthermore records the student entering and leaving the vehicle. This framework can likewise be utilized in IT organizations or workplaces to check the employees and furthermore secure unapproved individual entering the premises.

Keywords—surveillance embedded IP camera; embedded system; cloud storage; image quality.

1.0 INTRODUCTION

In today's world there is a lot of risk of intrusion and security issues has exponentially increased in this developing world. There are a few monitoring frameworks, for example, camera, CCTV and so forth. In any case, today regardless where the person is travelling we can still find is location with the present technology. A video observation framework is significant in various fields of our condition, for example, home security, banking, and so on. Most of the security systems are very expensive for middle-class groups to set up such as framework. so the common groups are utilizing IoT based minimal cost security frameworks which will assist them with securing their place of interest and so on.,

I. As we know that the world is rising with every single new innovation and there is a great scope for improvement in the field of technology. There are a ton of security issues and numerous provision in our frameworks, there is a requirement for security because of increment in multifaceted nature of our human culture and organization.

II. Consequently, all the customers of an organization give essential significance to security. On the off chance that a framework has great security, at that point that framework is favored by the customer. Our framework contains Security and observing as a spine for its guideline.

III. The security given by our framework is to keep a track on the students, and to give a live location of the vehicle to the vehicle organization as well as to the parents, to stay away from the section of any unapproved and to give uncommon help with instance of crisis circumstances.

IV. We utilize robotized CCTV observation, with login and logout of students while boarding and DE boarding through RFID modules inserted inside an ID card. Locating the vehicle using GPRS module is also a additional specification. It gives caution if any unapproved student enters the vehicle or attempts to sneak into the vehicle. We have this novel idea to solve the security issues in transportation which can also be implemented even in the IT industry transportation.

1.1 PROBLEM DEFINITION

The primary issues that our framework will solve are to check the invalid reasons given by the drivers for the time delay to arrive at the destination on time. To check if any unauthorized person attempts to get into the vehicle. to focus on a security of the students and also to solve other issues like location of the vehicle. And our framework will alert if any unauthorized card is placed as a caution. Parents would like to know whether their kids have reached safely on time and to ensure if everything was safe during the travel and also to monitor their kids our framework will give the location and also the login and logout details.

The parents will get a notification in regarding the vehicle status and thus ensuring the safety aspect as well as the real-time update with live location.

2.0 RELATEDWORKS

We have discovered various papers identified with the security framework. Distinctive security frameworks utilized for various purposes.

[1] Smart supervisor system that uses IoT based on embedded Linux operating system. With ARM11 architecture. In this research, they implemented a real-time video monitoring system and obtained the data. They also used PIR, temperature and humidity sensors in this system. The system first requires authentication from the user to activate the system. If the system finds a human, it sends that data to the server or user's phone.

[2] A door was developed to connect to the Internet, and the user also implemented a PIR sensor and camera. The PIR sensor is used to identify the person and the camera is used to take video of the person approaching the door. The video is sent to an authorized person via a 3G dongle. He also discussed some of the benefits of this system. They ended up using it in Bank, offices,Hospital etc.
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[3] Introduces a real-time monitoring and security system using the Raspberry Pi, which allows the system to monitor the user from any location. If the authors discuss in this system
If any movement is detected it checks for facial recognition. If the face is detected, it is stored in local storage, and they use a background subtraction algorithm to detect the face. The author concluded that the system has facial recognition and that users could remotely monitor the system.

[4] The security system is implemented, where a person arrives at the door, informs his / her homeowner via e-mail and Twitter, then the user can access the camera from any remote geographical location. The image of the person is captured and sent to Twitter and e-mail. He concluded that the user could control the door from anywhere. They conclude that the system is used to prevent unauthorized access.

[5] Developers of this system have implemented home automation and security systems
The system detects the intruder, creates an alarm, captures the intruder's image, and sends the captured image to the owner's mobile via SMS, WhatsApp, Call, E-mail. He discussed the benefits of this system. The author concludes that this system can be used to store the data in normal places.

[6] The security system is designed and implemented with the Raspberry Pi, the IR sensor and the camera containing IR sensor detects the person. The camera then captures the image of the intruder and the microphone records the person's voice and then captures the image with the voice. Sends this data to user mobile phone. He also discussed the advantages and disadvantages of this system in this case. The authors conclude that the system is useful for real-time monitoring of the home.

[7] The use of M2M communication is one of the advantages of the traditional data collection system (DAS) because it can be monitored and controlled without human intervention. As soon as the system is fully automated, errors will be reduced. The use of M2M technology allows the user to see the exact location from different remote locations. The GSM module is used in the field of wireless communication, where the system collects different parameters from all the sensors on demand and delivers it to the end users through wireless transmission networks.

[8] describes the advantage of sending push notifications when the system uses Raspian OS as an operating system. The Raspberry Pi is basically a credit card size and portable device that emits signal when detecting an energy efficient chipset and intrusion. The captured image is sent to the user, where the user can view the captured image from a remote location but the Raspberry Pi's power is not controlled from the window.

In [9] the PIR sensors which detects the presence of human appearance which will notify the user using message through GSM and image captured by camera through email using internet. After checking the Email and image user has to take further decision. Rather than sending Email to the user, sending push notifications makes the job easy. So that there is no need to check the email very often.

In [10] a webcam is a mini video camera that has the capability to feed or stream its image in real time to, or through a computer to a computer network. When the image is captured by the computer, the video stream is saved, viewed or sent to other networks via systems such as internet, and email as an attachment. When sent to a remote location, the video stream may be saved, viewed or sent there. Unlike an IP camera (which connects using Ethernet or Wi-Fi), a webcam is generally connected by a USB cable, or similar cable, or built into the computer hardware, such as laptops.

2.1 PROPOSED SYSTEM
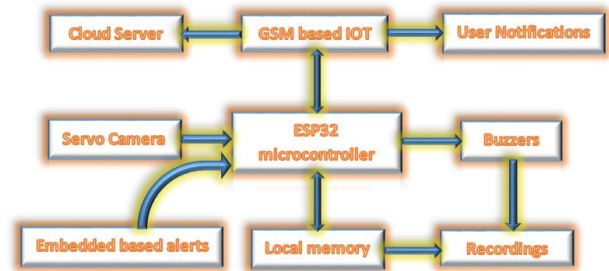
A. The framework is showed in the above blockdiagram. The primary rule of the framework is the subtraction of students boarding and DE-boarding the vehicle will be considered and in the event that any confound, at that point the warning is sent to the concerned authority and the organization office as well as transportation office and there the student details can be checked through observation.

B. The input from the camera is converted into digital signals and sent to the microcontroller for processing of data as per the set of protocols and instruction given by the programmer. The data is stored in the storage which can be accessed for the future reference. The application interface in the mobile used will receive a notification with data. When it comes to the vehicle the processed data will be input to the buzzer. As per the situation the buzzer is triggered. These are mainly based on embedded based alerts.

C. The local memory will store all the information with the recordings of the footage as well as the data obtained from the microcontroller and stored for future references.

D. The GSM module is responsible for the live location of the Vehicle and live stream can also be accessed by the user.

2.2 Components:

A. Embedded based alerts: Contains RFID which scans the ID card locally of the student getting inside the vehicle which will be connected with IoT dependent on HTTP asks for and approve the database as indicated by the administrator DB.

B. Servo Camera: Surveillance framework records the event and sends it to the local server and also stores in local memory which will refresh the video data to individual site pages which can be accessed later through the webpage.

C. ESP32 Microcontroller: Receives information from the RFID or from the nearby server and process the information and sends to the the server and GSM-based IoT utilizing POST strategy.

D. GSM based IoT: is used because in an institution there are many school buses, In order to identify and receive data and also to avail GPS network and internet connectivity for the school bus we use GSM.
The data received from microcontroller is processed and is stored in the cloud.

E. Cloud server: this will store all the information which are produced in the transport local server and that will be isolated dependent on the customer permeability and in the event that the customer needs to see the information, at that point they should sign in utilizing accreditations and dependent on their own availability they get the information from database and the information is noticeable in web application.

F. Local memory: goes about as a reinforcement to store information in the event that if there any server crash and furthermore any instance of low web network issues.

G. Bells and User warning: alarms if an interloper or wrong ID is utilized.

3.0 RESULT:

From this project we are getting some results which are showed below.

Fig:-1.0

From the fig 1.0 the display will be showing the project name and also the version of the update which we Developed upto date and it will be only visible once the device is on and also if we update the module.

Fig:-1.1

In fig:-1.1 is the second stage of our prototype and where it will display the options which are redirected for multiple tasks based on the user requirements and also there will be a different IoT connectivity for different actions.

Fig:-1.2

Fig:-1.2 is displaying that the device is ready with IOT connection and also it is ready to monitor the student data while they are entering into the bus. This will appear in option(a) of the main page. It will automatically update the data to the web page once if the valid student scans ID card while entering into the bus.

Fig:-1.3

In fig:-1.3 will appear only if any unauthorized student or person enters into the bus.

Fig:-1.4

The above fig:-1.4 will get appear when a user choose an option B in the main menu and this will be mainly used for admin side for new user updating purpose and also to check the available data with individual student.

			id	name	srn	rfid	busno
☐	✎ Edit	⇤ Copy ⊖ Delete	5	Shreevallabha A	R18EC287	65C4EB1F	21
☐	✎ Edit	⇤ Copy ⊖ Delete	11	vinay sv	r16ec3299	54c0203b	24
☐	✎ Edit	⇤ Copy ⊖ Delete	13	vinay sv	r16ec299	54c0203b	24
☐	✎ Edit	⇤ Copy ⊖ Delete	14	vinay sv	wekiu	54c0203b	54
☐	✎ Edit	⇤ Copy ⊖ Delete	15	TRH5	ETRGR	54C0203B	52
☐	✎ Edit	⇤ Copy ⊖ Delete	16	moumita	R16EE333	6	99
☐	✎ Edit	⇤ Copy ⊖ Delete	18	chandana	R17EC042	65d71e1f	65
☐	✎ Edit	⇤ Copy ⊖ Delete	19	vinith	r16ec303	d450d13a	10

↑　☐ Check all　　*With selected:* ✎ Edit　⇤ Copy　⊖ Delete　🖼 Export

Fig:-1.6

The above figure defines the main storage for our IoT access and also this will be the data base for user authority information.

3.1 Applications

1. Security for the students.
2. Providing student safety of streaming where the vehicle is exactly located which is the main concern of parents.
3. Perfection in time management of vehicles and transport department.

4.0 Conclusion.

Attendance monitoring system is really essential for basic security, utilization of Web application is helpful for monitoring students easily. It tends to work in IoT computerized, semi-automated and manual mode.it is economically affordable and easy to use for the normal authority.

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