

IOT BASED TICKET GENERATING AND CROWD CONTROLLING SMARTBUS SYSTEM

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ABSTRACT :

In urban areas, bus transports are the maximum popularly used and fee efficient. In this, every people may additionally get angry and loss their patient while ready and touring on the overall bus crowd and also the process of ticket amassing it could cause tension to the conductor and the passenger. For this issue, we came up with an innovative concept of a Smart Bus Stop. Which they can easily take tickets by themselves with the use of the RFID (Radio Frequency Identification) technology generates the tickets by using passengers very own. Right here, this is placed inside the bus stop as opposed to bus for time decreasing. And it's going to display the arrival of the bus and the precise count of the passengers on the LCD (Liquid Crystal display) panel. It calculates with the help of IR (Infrared) sensors and all of the information may be send to the created internet site using IoT (internet of things). It facilitates them to pick out their experience with comfort.

Keywords : RFID, LCD, IR Sensor, Arudino Uno board, Servomotor, WiFi Module

I. INTRODUCTION :

Each people may additionally get indignant and loss of their affected person while waiting and journeying on the overall bus crowd and additionally the system of ticket gathering it may purpose anxiety to the conductor and the passenger. For this problem, we came up with a modern idea of a smart bus stop. This system makes it easier than that current gadget. Inside the bus stop cage, LCD (Liquid Crystal display) display is made to display the precise area of the bus with the exact be counted of the passengers. Whilst the bus arrived to smart bus stop each enter and go out gate may be opened the use of RFID generation which is having a connection among the bus and the smart bus stop. The people are allowed to enter the bus handiest in the event that they entered the bus stop cage with a proper RFID card. After the travel receives over with their respective destination point, the passengers.

II. RELATED WORK

The research of Nishtha Agarwal [1] discusses, RFID based automatic bus fare collection system using electronic Ticket, it is described that a system that employs RFID based location information to provide navigational guidance based on his position. In [2] Shanmuga priya R discusses the IR sensor is used to calculate the number of available seats and it is displayed using the LCD and two LED lights are used to indicate whether the seats are full or vacant.

In [3] Pankaj Mudholkar discusses the passengers are counted which provides real time data about the number of passengers i.e., crowd in the bus. The data is transmitted to the cloud and the cloud transmits the data about the bus-number and crowd to the display on the bus stop.

In [4] Mrs.Thangamma K C discusses the passenger can login into his/her account once when the card is created by the Bus manager and view his travel history and he can also know where he is presently by clicking on the map in website & can also recharge their card and can also block their card when they lose it by calling to toll-free number. In [5] Vignesh B discusses the working model of our proposed method. It consists of a GSM module, RFID reader and Alcoholic sensor, Eye blink sensor. Etc. It controls the operation of Public transport and provides safety to the passengers and their money.

In [6] Aman Kaushik discusses the RFID cards can be issued to passenger at counters of bus stand by filling a registration form. The counter manager has a website on which he will fill the registration form with all details of passenger and issue them a RFID card with unique tag on it. In [7] Renuga Devi Subramanian discusses. In [8] Bhat Apoorva discusses the proposed framework has a navigation system for bus travelers that encourages the bus travelers to consistently interconnect with the real time

II. PROPOSED BLOCK DIAGRAM

This proposed system for smart bus information system using IoT technology. This bus side RFID reader used in bus location identify in help of bus stop RFID tag laminated. Then an IR sensor used seat availability in the arriving buses. The send to bus information details IOT Server or android App then displayed for bus stop displayed in notification. The bus stop side Then bus stop side used person RFID base gate open and close controlling system in help of servo motor.

This system enables the commuters to know the exact location of the bus, and occupancy level in the bus. communicate with RFID tags. RFID is the use of radio waves to read and capture information stored on a tag attached to an object, providing a unique identifier for an object. Passengers can use the RFID here for generating their bus tickets.

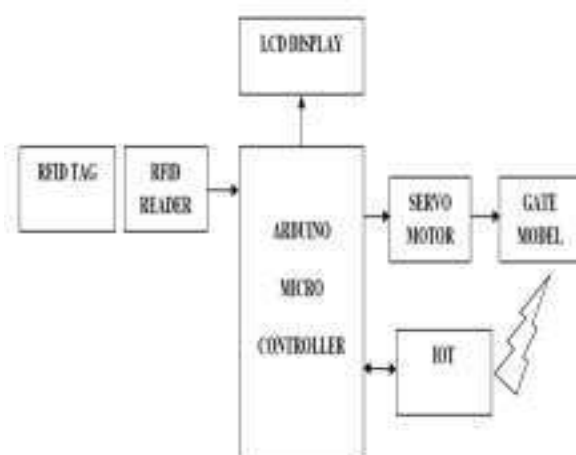


Fig 1: Proposed Block diagram without WiFi Module

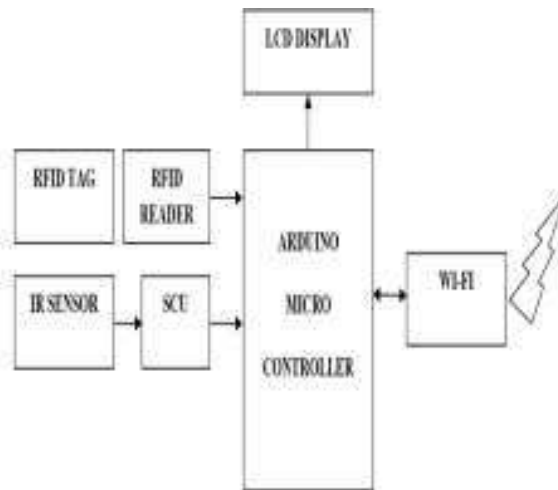


Fig 2 : Proposed Block diagram with WiFi module

III. COMPONENTS OF THE SYSTEM :

RFID Reader

Radio Frequency Identification (RFID) is the wireless non-contact use of radiofrequency waves to transfer data. Readers, also called interrogators, are devices that transmit and receive radio waves in order to sensor) is a radiation-sensitive optoelectronic component with a spectral sensitivity in the infrared wavelength range 780 nm ... 50 μm. IR rays are a type of electromagnetic radiation and their wavelength lies between 700 nm to 100,000 nm. All objects emit what is known as blackbody radiation. It is usually infrared radiation that is invisible to the human eye but can be detected by electronic devices designed for such a purpose. Infrared transmitter is one type of LED which emits infrared rays generally called as IR Transmitter. Similarly IR Receiver is used to receive the IR rays transmitted by the IR transmitter



Fig 3 : RFID Reader

WI-FI Module

The ESP8266 WiFi Module is a self contained SOC with integrated TCP/IP protocol stack that can give any micro-controller access to your WiFi network. The ESP8266 is capable of either hosting an application or offloading all Wi-Fi networking functions from another application processor.

The module has a wireless WiFi transceiver operating in an unlicensed frequency range of 2400- 2484 MHz in the IEEE 802.11 b/g/n standard, with support for TCP/IP communication protocol stack and WiFi security

including WAP3. Setup the Arduino IDE for ESP8266. First, use the Arduino Board Manager to configure the ESP8266. Connect the ESP8266 to your WiFi Network(SSID).



Fig 4: WiFi Module

Servomotor

This type of motor that can rotate with great precision. Normally this type of motor consists of a control circuit that provides feedback on the current position of the motor shaft, this feedback allows the servo motors to rotate with great precision. If you want to rotate an object at some specific angles or distance, then you use a servo motor. It is just made up of a simple motor which runs through a servomechanism. A servo motor usually comes with a gear arrangement that allows us to get a very high torque servo motor in small and lightweight packages. Due to these features, they are being used in many applications like toy car, RC helicopters and planes, Robotics, etc. Here the servo motor helps to open and close the doors.



Fig 5 : Servo motor

Arduino UNO

Arduino/Genuino Uno has a number of facilities for communicating with a computer, another Arduino/Genuino board, or other microcontrollers.



Fig 6: Arduino Uno

The ATmega328 provides UART TTL (5V) serial communication, which is available on digital pins 0 (RX) and 1 (TX). An ATmega16U2 on the board channels this serial communication over USB and appears as a virtual com port to software on the computer. The 16U2 firmware uses the standard USB COM

drivers, and no external driver is needed. However, on Windows, a .inf file is required. The Arduino Software (IDE) includes a serial monitor which allows simple textual data to be sent to and from the board

IV. METHODOLOGY

In this system manual mechanism is the process flow which occurs when the passengers generating their bus tickets. It contains a RFID reader and tag to access this process. The passengers can allow into the smartbus stop by show their RFID tag to the RFID reader, only If the tag is valid, otherwise it not allow the passengers enter into the smart bus stop.

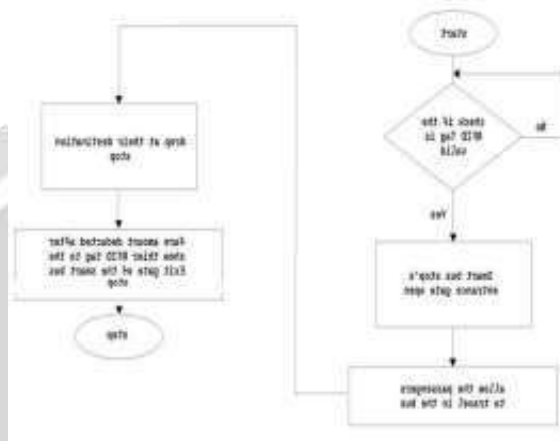


Fig 7: Manual Mechanism

V. RESULT



Fig 8: Prototype Model

This is the system ticket generating and crowd controlling smart bus stop by using internet of things that claim the more benefits. The sensor for collect the data of precise count of the passengers of the bus and the GPS module track the location of the bus. The data are updated into the created website by the WiFi module, then they are display in LCD panel which placed in

the smart bus stop. Passengers know the status of the bus and they decide their journey with comfort.

VI.CONCLUSION

In this paper, we have designed and implemented low cost Bus tracking system which helps the commuters to know the exact location of the bus and expected time of arrival at a particular bus stop along with the seat occupancy level on the smartphone. This reduces the waiting time, overcrowding at the bus stops and solves many problems like thefts and accidents etc. This prototype system at present developed for tracking buses travelling in one route, it can be implemented for all the routes. This system contains low covering frequency RFID reader; it can be implemented by using high covering frequency RFID reader.

VI. REFERENCES

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