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IoT Based Smart Crowd Management System

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ABSTRACT: Now a day's situation is became very worse together in a Public places and Public based service station. There is a lot of change in a usual life styles among the entire people. The main things need to upgrade ourselves and society to get prevent from the covid-19. What if, we could able to analyze how many peoples will occupied the particular place and monitoring through the Internet? So, therefore the solution is to monitoring the people, whoever gathered in a same scenario and update the vacancy at particular place. Hence, this propose a system device for the complete monitoring in such as Ration shop, taluk office and bank. So, with the help of this device to monitoring and update about the vacancy among crowd using IoT. The device consist of sensors will give the update about the vacancy available at particular place through the internet and we can get the update from the home itself. So, the place will enough vacancy to get zero possibility of affecting by covid-19.

KEYWORDS: Internet of Things, Crowd monitoing, wireless technology, Mobile application, Wi-Fi device.

I. INTRODUCTION

Global outbreaks over the past hundred years have seen a dramatic increase in demand for public transportation services. This need is not being met adequately as public transport services in countries such as India and China have failed to reach growing levels of society. In addition to this, new technologies have been used to manage crowds in public places. Beijing and Singapore have seen cases in which people are forced to die as a result of overcrowding. This begs the need to use technological solutions to reduce the problem and possibly save lives. The concept of IoT first emerged when Kevin Ashton first used the term IoT in 1999 under the context of supply chain management and later emerged to incorporate systems such as health care, resources and bio-sensing sensations. Today with the development of RFID, IPv6 and cloud computing, IoT is becoming more widely available. Urban IoT applications for smart and efficient cities focus on smart homes, public transportation, street lighting systems and energy systems. In the public transport sector, IoT has only been tested to integrate

the following features: 1. Traffic and Route Planning 2. Real-Time Tracking 3. Accident Prevention and Safety 4. Information Warnings Keeping in mind the increase in traffic congestion and the lack of IoT solutions to this problem, this paper introduces IoT crowd management system. Uses a sensor to display stay on top of the mobile app. Real-time seating status will allow passengers to know in advance the fullness of the public space.

II. RELATED WORK

[1] j. w. choi, x. quan and s. h. Cho : "BI-DIRECTIONAL PASSING PEOPLE COUNTING SYSTEM BASED ON IR-UWB RADAR SENSORS",The proposed method that uses IR-UWB radar sensors to calculate people. It is a technology that transmits an impulse signal and perceives a variety of conditions by processing the many signals available after exposure to people and objects". The algorithm designed for this approach is implemented using the ARM Cortex-M4 and Raspberry Pi 2 modules. Two IR-UWB sensors with antennas are configured to calculate population. Although the system can get many people at once, it does not incur costs. Sensors are the most expensive on the market.[2] K. Madhira and A. Shukla, "PEDESTRIAN FLOW COUNTER USING IMAGE PROCESSING",Kartik Madhira and Aditya Shukla have proposed a method that uses image processing techniques to calculate specific locations such as ATMs, department stores, shopping malls etc. This method is achieved with an accuracy of around 80-93%. Cameras are mounted on multiple sides to check the accuracy of the method. The system requires real-time monitoring of people with expensive camera modules.[3]Vidyasagar, S., Devi, S. R., Varma, A., Rajesh, A., & Charan, H. : "A LOW COST IOT BASED CROWD MANAGEMENT SYSTEM FOR PUBLIC



TRANSPORT. INTERNATIONAL CONFERENCE ON INVENTIVE COMPUTING AND INFORMATICS (ICICI), 1–13.” A LOW COST IOT BASED CROWS MANAGEMENT SYSTEM FOR PUBLIC TRANSPORT”,The study revealed the crowd management using the iot method where the crowd is controlled by the Mobile application. This paper shows a crowd management system using iot devices such as cell phones. However, what application has been made. [4] Jothibas M, Aakash B, Shanju Ebanesh K, Gokul Vinayak L : “AUTOMATIC ROOM MONITORING WITH VISITOR COUNTER-2019”,Another method that uses IR sensors was suggested that IR sensors play an important role in detecting objects. In this way, two IR sensors are placed next to each other that receive guests. In addition to being a two-way counter, this method can be used to control household items and to help use less electricity. This route cannot reach more than one person at a time. If two people go through the process, the program will only accept one person. [5] R. Journal : "THAT 'INTERNET OF THINGS' THING - RFID JOURNAL", Rfidjournal.com,Global outbreaks over the past hundred years have seen a dramatic increase in demand for public transportation services. This need is not being met adequately as public transport services in countries such as India and China have failed to reach growing levels of society. In addition to this, new technologies have never been used to manage public transportation crowds. Beijing and Singapore have seen cases in which people are forced to die as a result of overcrowding. This begs the need to use technological solutions to reduce the problem and possibly save lives. The concept of IoT first emerged when Kevin Ashton first used the term IoT in 1999 under the context of supply chain management and later emerged to incorporate systems such as health care, resources and bio-sensing sensations.

III. METHODOLOGY

The circuit diagram consist the components of core components of ESP32 Wi-Fi device, infrared sensor , 5v regulator, power supply, servo motor, LCD display. 12v Power Supply is given to regulator for voltage regulating 12v to 5v then 5v supply is given to Wi-Fi device. VCC and GND pins are connected to regulator.Infrared sensor connected to ESP32 Wi-Fi device. To check entrance and exit of crowd details. It has three pins, VCC connected to positive, GND connected to negative and output pins are connected to digital pin.Servo motor connected to Wi-Fi device and signal from IR sensor. It has three pins, VCC connected to positive, GND connected to negative and output pins are connected to analog pin.LCD display connected to Wi-Fi device. VCC connected to positive and GND connected to negative and Rs connected to D2, E connected to D3 and D4, D5, D6, D7 are connected to digital pins.

IV. EXPERIMENTAL RESULT

Figures shows the results of available spaces in a particular room

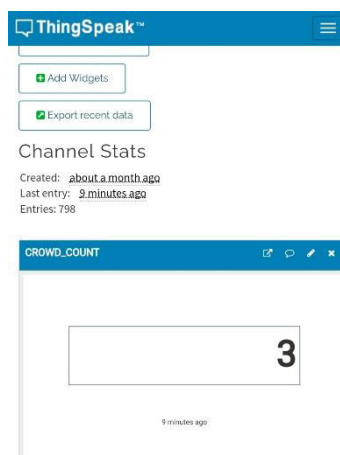


Fig. 1. (a) This shows a available space in a website



Fig. 2. (b) The available space is displayed in the LCD screen display

V. CONCLUSION

By using this IOT-based crowd management program we can reduce overcrowding in the area and avoid exposure to covid-19 virus. The details of the crowd somewhere can be viewed in real time using this clever program. A person's number can be entered and exit can be detected using an IR sensor and displayed on an LCD display. It also helps people save time indirectly and prevent the spread of the virus.

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