ISSN : 2321-9602

Indo-American Journal of Agricultural and Veterinary Sciences




editor@iajavs.com
iajavs.editor@gmail.com

Indo-Am. J. Agric. & Vet. Sci., 2022 *ISSN 2321–9602 www.iajavs.com*

Indo-American Journal of Agricultural and Veterinary Sciences

Vol. 10, Issue 2, June 2022

IMPLEMENTATION OF LOCATION BASED MISSING PILGRIMS IDENTIFICATION, HEALTH MONITORING AND ALERTING SYSTEM

1J.LALITHA KUMARI, 2T.S.S. NAGA PAVAN KUMAR

1M.Tech Student, Dept of ECE, Vignan's Lara Institute of Technology and Science, Guntur, A.P, India

2Assistant professor, Dept of ECE, Vignan's Lara Institute of Technology and Science, Guntur, A.P, India

ABSTRACT: Everywhere you go, you'll see pilgrims.

ABSTRACT

They show their devotion by congregating at sacred sites, which often attracts large crowds. This wrist band method is used to monitor the whereabouts of pilgrims throughout their journeys. In addition, it keeps tabs on the patient's health and, in the event of an emergency, instantly notifies the appropriate authorities through the alerting system. This will come in handy for the pilgrims as they make their way through throngs throughout their journey. If they are lost or missing, or if they are suffering from any health issues, this technological technology may assist them locate them and follow their movement. Pilgrims' principal use of the location-based crowd sensing framework is the geo fence system. In the event that someone goes missing and we don't know where he or she is, we may go to the main office and use the wi-fi linked to their wrist band to follow their whereabouts. When searching for a missing individual, a wrist band is employed as a sensor and server information are recorded at regular intervals to keep track of the person's whereabouts. It is possible to trace pilgrims' whereabouts and check their health problems using this information.

KEY WORDS: Health monitoring and warning systems for pilgrims

I.INTRODUCTION

The pilgrimage sites in India are the most holy destinations for Indians to complete their religious duty. Pilgrims from all over the world, many of whom are making their way to these holy sites for the first time, face several obstacles along the way, including unfamiliar languages, customs, and educational and social backgrounds. It's not uncommon for pilgrims to be separated from their loved ones. In such throng, it's tough for the surviving family members to locate the missing one, and it's much more difficult for them. In-charge individuals. It is possible for big groups of pilgrims, all at the same time, to conduct rituals concurrently in such congested settings. Pilgrims' eagerness to reach their destination results in congestion on these journeys. Overcrowding causes many deaths and injuries, as well as illnesses and other health problems for those who are unfortunate enough to be there. Safety, security, and health, lodging, and transportation services are difficult to provide in the face of adversity. Heavy traffic and crowds make it difficult to find areas of importance including hospitals, currency exchanges, and restaurants, making it difficult for pilgrims to get there and for services to be provided on a regular basis. We're using a wrist band technology that anybody of any age may use to get around this problem.

Thousands of people make the trek to various holy sites every year to offer prayers. Pilgrims' movements and whereabouts are difficult to follow when they arrive at their final destination since the number of pilgrims participating in pilgrimage is both random and large. As a precautionary measure, to prevent medical crises from leading to accidents or disasters. This technique is utilised to keep tabs on the whereabouts of pilgrims as well as their general well-being. The project's parts include a heartbeat sensor that provides a continuous heartbeat and a MEMS sensor that provides temperature sensor that detects the pilgrim's temperature in case of an urgent situation, as well as a help button Hardware and software components such as a raspberry pi, an ESP8266 chip node MCU heartbeat sensor, an accelerometer sensor, and a buzzer are used in this project's implementation. When it comes to processing power, the Raspberry Pi is an excellent choice. Python is the programming language of choice for the Raspberry Pi. Sql is used to interact with databases and execute different actions on their contents.

C language is another programming language that may be used to programme the MCU of the Node. In order to provide Wi-Fi connectivity to its customers, the Node MCU platform is free and open source. In order to connect automatically to the Node MCU, the ESP8266 chip may be utilised as a Wi-Fi module. ESP8266, a heartbeat sensor, and an accelerometer sensor are all attached to the pilgrims' wristbands as soon as they step foot on the pilgrimage trail. A family's lost pilgrim may be tracked down with an ESP8266 chip-equipped wristband. An accelerometer sensor on the wrist band is used to monitor a pilgrim's physical state, alerting authorities in case of an illness or injury. The ESP8266 chip is connected to the node MCU through Wi-Fi via the node MCU. The Wi-Fi-enabled raspberry pi serves as a server for tracking the pilgrims' whereabouts. The pilgrim data may be found in the server data from time to time.

II. **A SURVEY OF LITERATURE.**

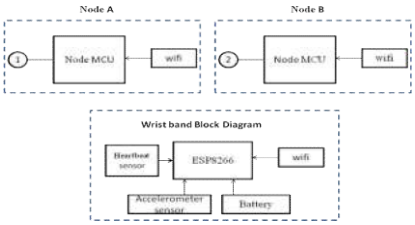
Individual pilgrims may now be tracked using the technique developed by Abul-Hussain, Balakrishnan K, et al. Any pilgrim in need of assistance may do so using the same way in an emergency. A pilgrim in need of assistance will be marked on a map, making it simple for others to locate the pilgrim. The system has been tested and found to be functional. cooperation with a previously designed RFID identifying system. During this year's pilgrimage season, the new method was successfully tested. Anant Khilare, Priyanka, and others Hybrid architecture being proposed. Sensor networks based on BSN form the basis of this design. Each pilgrim is equipped with a tiny, portable device. GPS, a body sensor, and a Zigbee radio are all included in the mobile device. It is possible to communicate with fixed devices using Zigbee radio. The hardware and software of a fixed unit are utilised to communicate with mobile units. Using the query, the mobile unit communicates its position and unique identifier (UID) to the stationary unit. In addition, these stationary devices connect with each other through gateway nodes to relay the gathered data to the station. As an example, a gateway node may be found in 3.5G networks. With this high data rate network, the server may receive a significant number of data.

Engineers have previously come up with answers to challenges encountered by pilgrims and the authorities during religious rites. In the past, researchers created a mobile gadget that uses RFID technology to assist police identify pilgrims. He's come up with a solution that uses RFID technology. It aids in the identification of pilgrims as well as crowd management for the governing body. Using RFID tags embedded in a wristband and a user interface (GUI), he created a working prototype of an identifying system for pilgrims. Pilgrims wear a wristband RFID tag that saves information about their journey. Identification and medical emergencies both benefit from this data.

Pilgrims are usually given pre-pilgrimage training by pilgrimage officials. They do, however, run against issues that come up along

the trek. This makes it easier for pilgrims to make quick judgments while participating in religious ceremonies. People who are pilgrims may be affected.

Using guidebooks or following other pilgrims is a good way to get started. Experts, on the other hand, may not always be available. In other words, the knowledge-based strategy presented by Shahida Sulaimanand Hasimah Mohamed is able to cover potential issues and solutions from specialists. When it comes to studying, this technique is a godsend for those



on pilgrimage. Based on the creation of intelligent agents, Willy came up with a way to simulate crowd behaviour. To create the crowd's behaviour, an intelligent agent is deployed to each pilgrim. Simulated pilgrim behaviour was shown to be more accurate than that of genuine pilgrims. It is possible to employ such a technique to prepare pilgrims for their real journey. It is very impossible to determine the precise location of each pilgrim, and it may take many days to do so.. Using a tracking system is the greatest technique to find a person.

PROPOSED SYSTEM

In the planned approach, pilgrims of all ages are given wristbands to indicate the whereabouts of their missing family members. This ESP8266 chip-equipped wristband module is used to locate the errant pilgrim. They will be able to keep track of where they are and how far they have travelled thanks to the use of smart devices. Pulse oximeters and accelerometer sensors are part of the pilgrim's health monitoring system. When a pilgrim's health or safety is in jeopardy, the alerting system is activated to notify the appropriate authorities. As a result of this initiative, pilgrims' journeys are made easier and more memorable by the project's security and safety measures. The pilgrim tracking system's block diagram is displayed in the image below (1). Detailed descriptions are given for each part of the system.

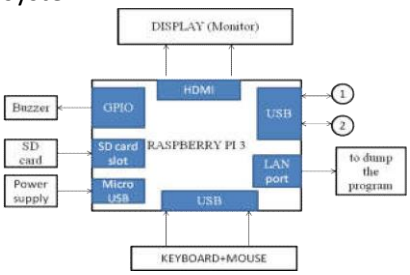


FIG. **1: BLOCK DIAGRAM OF PROPOSED SYSTEM**

FIG. 2: BLOCK DIAGRAM OF SERVER

A. **Raspberry Pi 3**

With the Raspberry Pi, you can use a regular keyboard and mouse to operate a low-cost, credit-card-sized computer. Children and adults of all ages may use it to learn about computers and programming languages like Scratch and Python. The ENC28J60 Ethernet chip is installed in this Raspberry Pi to connect to the internet..

FIG.3. **RASPBERRY PI 3**

B. GPIO pins

In an integrated circuit or computer board, a general-purpose input/output (GPIO) pin is one whose operation may be altered by the user at runtime, including whether or not it is an input pin or an output pin..

C. **Power supply**

The project requires a Power Supply as a prerequisite. Recharging and recharging units are supplied with DC power by means of the mains. Center-tapped secondary of a 12-volt-to-120-volt transformer is utilised for this purpose. This is based on this.

We're obtaining a 5V power supply from a transformer.

D. SD card.

There is a minimum suggested card size of 8 GB for the raspberry pi, and the operating system needed is raspbian.

E. Node Microcontroller

The Node MCU IoT platform is free and open source. Firmware for the ESP8266 Wi-Fi SoC from Express if Systems and hardware based on the ESP-12 module are included in this package By default, the firmware is referred to as "Node MCU," rather than the development kits. Lua is the scripting language used by the firmware. On top of the Expressive Non-OS SDK for ESP8266, eLua is used. Many open source programmes

FIG.4. ESP8266

D. Pulse Oximeter

It is a non-invasive method for monitoring a person's oxygen saturation (SO2). Though its reading of SpO2 (peripheral oxygen saturation) is not always identical to the more desirable reading of SaO2 (arterial oxygen saturation) from arterial blood gas analysis, the two are correlated well enough that the safe, convenient, non- invasive, inexpensive pulse oximetry method is valuable for measuring oxygen saturation in clinical use. In its most common (transmissive) application mode, a sensor device is placed on a thin part of the patient's body, usually a fingertip or earlobe, or in the case of an infant, across a foot. The device passes two wavelengths of light through the body part to a photo detector. It measures the changing absorbance at each of the wavelengths, allowing it to determine the absorbance's due to the pulsing arterial blood alone, excluding venous blood, skin, bone, muscle, fat, and (in most cases) nail polish.

As an alternative to transmissive pulse oximetry, reflectance oximetry is employed less often. The feet, forehead, and chest may all be treated with this approach, although there are certain drawbacks, such as the need for a thin portion of the person's body. SpO2 readings may be inaccurate owing to a mix of arterial and venous pulses in the forehead area, which can be caused by vasodilation and pooling of venous blood in the head. A patient in the Trendelenburg position or endotracheal intubation and mechanical breathing might suffer from these symptoms.

The amount of oxygen in your blood may be seen on a blood-oxygen monitor. The proportion of haemoglobin, the protein in blood that transports oxygen, that is loaded is measured. Patients with no pulmonary pathology should have values between 95 and 99 percent of the expected range. The "saturation of peripheral oxygen" (SpO2) value on a blood-oxygen monitor may be used to estimate arterial pO2 for a patient breathing room air at or near sea level. One of the patient's fingertips or earlobes, which is transparent, serves as the photodiode for a conventional pulse oximeter, which is powered by an electronic processor and two miniature light-emitting diodes (LEDs). There is a 940 nm infrared LED, and a 660 nm red LED for comparison. Light absorption at these wavelengths varies greatly between blood that is well-oxygenated and blood that is depleted in oxygen. Increased absorption of infrared light by oxygenated haemoglobin is accompanied by an increase in red light transmission. More infrared light may pass through and more red light can be absorbed when haemoglobin is deoxygenated.

The LEDs alternate between on and off roughly 30 times per second, allowing the display to stay on at all times.

photodiode that can distinguish between red and infrared light and compensate for the light level in the environment. There are different normalised signals for each wavelength based on the quantity of light being transmitted (i.e., not absorbed). Because the volume of arterial blood rises (actually pulses) with each heartbeat, these signals change in time. Other tissues' impacts are compensated for by subtracting the minimum transmitted light from the maximum transmitted light at each wavelength. Following the Beer–Lambert rule, the processor uses a lookup table to transform a red light measurement to an infrared light measurement, which indicates the ratio of oxygenated haemoglobin to deoxygenated haemoglobin.

(G) Sensor for measuring acceleration:

For example, a speedometer monitors acceleration as well as other parameters like velocity and angle. Here, the angle of the pilgrim is measured to warn the higher authorities if the individual suddenly falls down in the throng owing to any health-related concern or

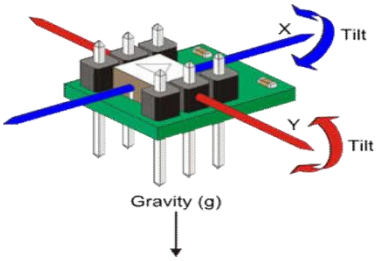


FIG.5: ACCELEROMETER

G) **Zigbee**

Zigbee is a specification for a suite of high level communication protocols using small, low-power digital radios based on the IEEE 802.15.4 standard for wireless personal area networks (WPANs).The technology defined by the Zigbee specification is intended to be simpler and less expensive than other WPANs, such as Bluetooth

II. RESULT

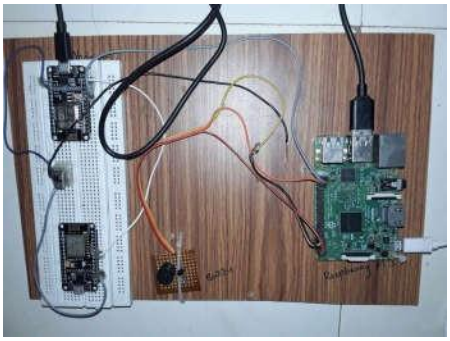


FIG.6: SERVER MODULE

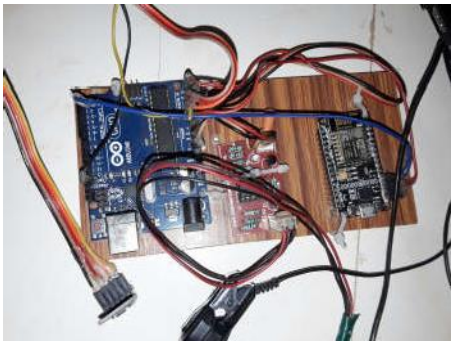


FIG.7: HEALTH MONITORING SYSTEM

FIG.8: PILGRIM IDENTIFICATION SYSTEM IN WRIST BAND

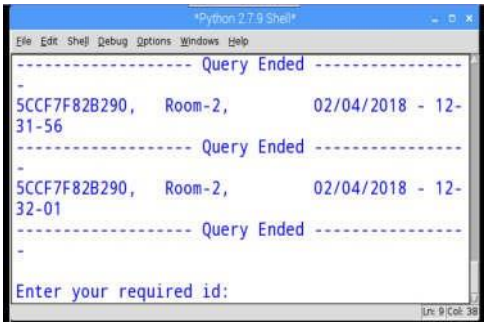


FIG.9: IDENTIFICATION OF MISSING PILGRIM

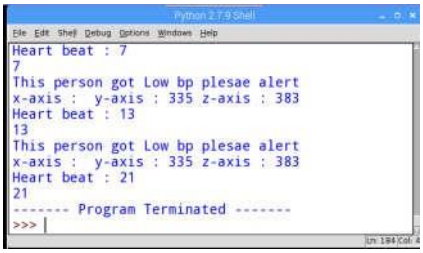


FIG.10: RESULT OF HEALTH MONITORING SYSTEM

III. CONCLUSION

IV. Prototypes of a wearable sensors-based system for pilgrims' health and safety have been installed. In the control room, the GUI is a huge aid to the crowd-managing authority since it allows rapid access to pilgrim information Because the pilgrim must push a switch to summon assistance, communication between the two groups is made easier despite the absence of a shared language. The time it takes to gather all of the required information on a sick or a missing person is cut in half, allowing the appropriate authorities to begin aiding them right away. The wearable device is simple to use for pilgrims. They don't need any

previous training or a high-end smart phone to get started. Even more importantly, the technology does not interfere with their rituals. Our long-term goal is to develop a system that is lightweight, affordable, and energy efficient. If the name of the site were shown, it would be much better.

V. REFERENCES

[1] "RFID Based Pilgrims Identification and Tracking System," ACES, vol. 25, no. 3, pp. 273–282, March, 2010.

[2] Wireless Sensor Networks for Pilgrims Tracking, IEEE Embedded Systems Letters, vol. 4, no. 4, December 2012, pp. 106-109, Mohamed Mohandes, Mohamed Haleem, Mohamed Deriche, and Kaviarasu Balkrishnan [2].

[3] "Client-Server Network Architecture for Safe Pilgrim Journey in the Kingdom of Saudi Arabia," by Imed Ben Dhaou

[4] pp. 1043-1048, June, 2010. IEEE Intelligent Vehicles Symposium.

[5] Radio Frequency Based Navigation and Management System for KUMBH," IEEE International Conference on Computer Intelligence and Communication Technology (pp. 422-426), Ajay Sharma, Amit Raut, Pankaj Donde and Amitkumar Manekar, 2015.

[6] An Android-based system for tracking pilgrims is described in detail in Mankala Sowmya and B. Santosh Kumar's article, "Smart Way to Track and Assist Pilgrims Using Android."

[7] K. Sreenivasa Ravi, Mohammed Abdul Aziz, and B. Venkata. Ramana, "Pilgrims Tracking and Identification Using RFID Technology," AEES, vol. 1, no 2, pp96-105, 2012.

[8] In "Wireless Sensor Network for Real Time Health Control and Tracking of Pilgrims," Priyanka A. Khilare, M.B.Limkar, and Prachi Kamble, IOSR-JEEE, pp. 8–12, 2014.

[9] The IEEE International Conference on Bio-informatics and Bio-medicine, pages 605-607, 2014. I. Nafea, M. N Bhairy, and Z. A Zeidan, "Health Tracking Framework for Hajj Pilgrims Using Electronics Health Records for Hajj."

[10] A Review: Monitoring and Safety of Pilgrims Using Stampede Detection and Tracking", IJRET, Vol. 4, No. 7, July 2015, by S. K. Shah and Sharley Kulkarni.

[11] According to Sharley Kulkarni's IJAREEIE article in July 2015, "Pilgrim Tracking using Pilgrimage Stampede Detection and Pilgrimage Tracking," we may "monitor and protect pilgrims using stampede detection and pilgrim tracking."

[12] One of the authors of this study is KAWAGUCHI Y.; the others are SHOJI T.; Weijane LIEN; Kakusho K.; and Minoh M. (2005). Attendance system based on facial recognition. The 3rd AEARU Workshop on Network Education will be held in June (pp. 70-75).