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IOT Based Alert System for Visually Challenged People Using Blynk Server

Sivaram L, Maheswari J, Subhasini S B, Preetha R

Student, Department of Computer Science and Engineering, Dhirajlal Gandhi College of Technology, Salem,
Tamil Nadu, India

Assistant Professor, Department of Computer Science and Engineering, Dhirajlal Gandhi College of Technology,
Salem, Tamil Nadu, India

Student, Department of Computer Science and Engineering, Dhirajlal Gandhi College of Technology, Salem,
Tamil Nadu, India

Student, Department of Computer Science and Engineering, Dhirajlal Gandhi College of
Technology, Salem, Tamil Nadu, India

ABSTRACT: There are approximately 37 million people across the world who are blind in step with the planet Health Organization. It's supported ultrasonic sensors and Arduino for visually impaired people. People with visual disabilities are often enthusiastic about external assistance which might be provided by humans, trained dogs, or special electronic devices as support systems for deciding. We accomplished this goal by adding ultrasonic sensors that give information about the environment to the user by activating the buzzer sound. We proposed a low cost and lightweight system designed with a microcontroller that processes signal and alerts the visually impaired person over any obstacle, through beeping sounds. The continual monitoring of patient health data becomes a difficult task in a hospital. Keeping track of the health status of the patient people at a hospital may be a difficult task. Especially old aged and unconscious people should be periodically monitored and their loved ones have to learn about their health status from time to time while at work. So we propose an innovative system that automated this task with ease. The target of this project work is to propose and develop a web of Things (IoT) based system for hospital application. A dynamic system consisting of sensors, Node MCU ESP866, Wi-Fi connected over a web is developed. The BLYNK IoT Android application is employed to send the notification through touch on buttons. Thus BLYNK IoT based patient health tracking system effectively uses internet to observe patient health status and save lives on time.

I. INTRODUCTION

Visually impaired people are the people that find it difficult to acknowledge the tiniest detail with healthy eyes. People who have the visual acuteness of 6/60 or the horizontal range of the field of vision with both eyes open have but or adequate to 20 degrees. These people are thought to be blind. A survey by WHO (World Health Organization) meted out in 2011 estimates that within the world, about 1% of the human population is visually impaired (about 70 million people) and amongst them, about 10% are fully blind (about 7 million people) and 90% (about 63 million people) with low vision. The most problem with blind people is the [way to way to] navigate their way to wherever they need to travel. Such people need assistance from others with good eyesight. As described by WHO, 10% of the visually impaired haven't any functional eyesight the least bit to assist them move around without assistance and safely. This study proposes a brand new technique designed to assist visually impaired those that will provide them navigation and also detect the obstacles, the foremost critical shortcomings of those aids include: essential skills and training phase, range of motion, and extremely insignificant information communicated been communicated. Our approach modified with some electronics components and sensors, the electronic aiding devices are designed to unravel such issues. The ultrasonic sensors, buzzer, and RF transmitter/receiver are wont to record information about the presence of obstacles on the road. Ultrasonic sensors have the capacity to detect any obstacle within the space range of 2cm-450cm. Therefore whenever there's an obstacle during this range it'll alert the user. With the rapid advances of contemporary technology both in hardware and software it's become easier to supply intelligent navigation system to the visually impaired.



II. LITERATURE SURVEY

[1] In this Paper we present a clear survey of the navigation systems of blind/Visual impaired people that are proposed by different authors highlighting various technologies used, designs implemented, working challenges faced and requirements of blind people for their autonomous navigation either in indoor or outdoor environment.[2]In this paper it needs the user's constant activity and acutely aware efforts to actively scan the encircling atmosphere. The stick will solely find obstacles up to the knee level. Hence, the user cannot find raised obstacles, like scaffoldings and transportable ladders. This poses a collision danger. The stick will solely find the obstacles that square measure at a distance of one from the user giving very little time to require any preventive actions. The most aim of this method is employed to change visually impaired persons to maneuver freely with constant ease and confidence as a quick-sighted individuals.[3]In this Paper the main initiative is to enable the blind navigate with confidence and to be alert if their walking route becomes obstructed with other things, people or related odds. In the circuit, a buzzer is attached as a warning signal, whose beep frequency changes depending on the distance of the target.The ultrasonic sensor transmits a sound pulse at high frequency, and then measures the period to obtain the sound echo signal to mirror back.[4]In this paper the Author mainly focuses on physical and Sensory disabled peoples. This article analyses the living environment of Sensory and Physically disabled people, then present how IoT can help them to overcome these difficulties. By using this technology differently able people can improve their life style to some extent as normal people do.[5]The objective of this research work was to propose and develop an Internet of Things (IoT) based system for physically disabled people. A dynamic system consisting of sensors, ARM7 processor, Bluetooth, speaker, relays and GSM connected over an internet was developed. Communication between hardware and software was done using RS232 communication. With this system, patient on reaching the Higher Limit (HL) or Lower Limit (LL) can send alerts to all the mobile numbers entered over the network. The android application was used to send the SMS through voice or touch on buttons.

III. EXISTING SYSTEM

A smart home system using ZigBee based voice controlled wireless. LabVIEW software is employed for the voice recognition system. Different voice commands. are accustomed control the electrical appliances. LED's and Monitor display is employed to alert the user. The communication between device and therefore the base is completed with the assistance of RF signals. handheld devices and ZigBee module, this technique uses voice commands and SMS commands to manage the appliances. When the voice commands are given then its converted to text message and sent through GSM. ZigBee module is employed to manage multiple points at a time the prevailing health care in home automation systems with speech recognition and mobile technology A home automation system for elderly and disabled person using Xbee. **Drawbacks**

- HighCost
- LowDatarate
- LowSpeedComparedwithProposedworkIoTmodule

IV. PROPOSED SYSTEM

As ultrasonic sensors work on principle of echo, studying of its reflection on different obstacle is very important. The measurement cycle starts with microcontroller transmitting the $10\mu\text{s}$ high level pulse to the sensor trigger pin. Ultrasonic distance sensor uses time of flight (TOF) to detect obstacle the output is a digital pulse which length is the time it takes for the sound to reach the target and return before the beep is heard .The device is accurate with detecting obstacle of up to 2m. We have proposed the Novel new Free IOT cloud Platform 24hrs for Monitoring the information using BLYNK local Server.

ADVANTAGES

- Easy to access IOT platform
- High speed dual core processor IOT module
- Low cost

MODULE DESCRIPTION

1]Sensing Module: This system uses Temperature and heartbeat sensor for tracking health of physically challenged people. In case of any abrupt changes in patient heart-rate or body temperature alert is sent about the patient using IoT. Thus physical challenged people health monitoring system based on IoT uses internet to effectively monitor patient



health and helps the user monitoring their loved ones from work and saves lives. The sensors are connected to a microcontroller to track the status which is in turn interfaced to an LCD display as well as Wi-Fi connection in order to transmit alerts. If system detects any abrupt changes in physically challenged people heartbeat or body temperature, the system automatically alerts the user about the physically challenged people's status over IOT and also shows details of heartbeat and temperature of physically challenged people live over the internet.

Heartbeat Sensor: The Pulse Sensor is a plug-and-play heart-rate sensor for Arduino. It can be used by students, artists, athletes, makers, and game & mobile developers who want to easily incorporate live heart-rate data into their projects. The essence is an integrated optical amplifying circuit and noise eliminating circuit sensor.

Temperature Sensor: The sensors are connected to a microcontroller to track the status which is in turn interfaced to an LCD display as well as Wi-Fi connection in order to transmit alerts. If system detects any abrupt changes in physically challenged people heartbeat or body temperature, the system automatically alerts the user about the physically challenged people's status over IOT.

[2]Blynk IoT Platform: Blynk IoT app platform was developed for the net of Things applications. This server operated regionally and it's chargeable for communication between golem devices and real time embedded devices, it will manage the thousand of embedded devices and objects

Three major components in the platform:

- **Blynk App** -allows to you create amazing interfaces for your projects using various widgets we provide.
- **Blynk Server** - responsible for all the communications between the smartphone and hardware. You can use our Blynk Cloud or run your private Blynk server locally.
- **Blynk Libraries** - for all the popular hardware platforms enable communication with the server and process all the incoming and out coming commands.

[3]Data Analytics

The IoT platform used in this project is an open-source Internet of Things (IoT) application and API to store and retrieve data from things using the HTTP protocol over the Internet or via a Local Area Network. This IoT device could read the pulse rate and measure the surrounding temperature. It continuously monitors the pulse rate and surrounding temperature and Mems sensor data updates them to an IoT platform. Our system is designed to monitor the patient's health using three types of sensors. These sensors are Mems sensors and Temperature and Heart Beat sensors. Using these sensors we can easily monitor and measured are analyzed over the internet using Internet of Things. With this system, patient on reaching the Higher Limit (HL) or Lower Limit (LL) can send alerts to all the mobile numbers entered over the network. The BLYNK IoT android application was used to send the Notification through touch on

V. CONCLUSION

Internet of Things (IoT) is now becoming the emerging issue of research. Nowadays IoT is being used in daily life. IoT is also becoming a boon to visually impaired person, a model of alert system is proposed to avoid collision and accident for visually impaired person. Ultra-sound sensor is used to sense the obstacle in front of person. This ultra-sound sensor can easily help the visually impaired person, so whenever and wherever when the obstacle detected it would be sensed. This sensor is connected to the smart-phone of user through the sensor. When an obstacle is sensed, It will send a message to the smart-phone and smart-phone will show the Alert message.

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