IOT BASED STEERSMANSHIP SYSTEM FOR VISUALLY IMPAIRED HUMAN RACE

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ABSTRACT

By using this smart blind stick, blind persons can readily engage with the physical environment, which is the goal of the project's goal. If we pay attention, we will quickly see that they require assistance to walk. With the help of this clever blind cane, one may confidently go about. Blind individuals now utilize a conventional cane to guide them as they walk from one area to another. Although the standard cane is the most common aid used by visually impaired persons today, it is unable to assist them in recognizing risks from all tiers of barriers. In this context, we suggest a brand new intelligent method for assisting blind or partially sighted people. The technique is used to provide blind individuals the same mobility and self-assurance as sighted people. Additionally, it offers guidance and information on how to avoid impediments including humans, water and sensors-based obstructions. The technology is connected to GPS navigation so that the blind person's location may be pinpointed and updated in the cloud.

Keywords— IoT, Navigation System, Visually Impaired, Sensors.

I. INTRODUCTION

This project having the ability to see is crucial to human existence, yet some people are rendered immobile by their blindness. In this essay, we suggest a navigation method or tool that is useful to blind people. With the use of that blind stick, people can see obstacles in front of them as well as move in both known and uncharted territory. It uses IR sensors of IR, to identify obstacles, and the blind person is alerted to them when their phone vibrates or plays an audio message. The capacity to move confidently, swiftly, and safely around his immediate area independently is referred to as mobility and independence for visually impaired persons, however it is not achievable without technology. One method that we put into place helps that blind individual. With the aid of GSM/GPS, those individuals who use an telegram application in an Android phone or computer that is carried by the blind person and the administrator to identify obstacles in front of them, safeguard the blind person, and monitor both the blind person's home location and present position. In addition to being able to monitor the location of a blind person's whereabouts, a new tool called live video capture has been added. By capturing the stream in front of a blind person, an administrator may watch from their home.

II.EASE OF USE

Using computer vision, it effectively detects various objects in the surrounding environment and appropriately alerts the user accordingly. This system can be a first step in order to make the visually impaired people to commute without the need of blind sticks.

III.METHODOLOGY

- It serves as an example of the proposed paradigm in this situation. A microprocessor called Raspberry Pi is use to collect all the data.
- A buzzer alerts the user if there is an obstacle in front of the stick before the web camera starts recording video using Tensor Flow object detection. Finds the object and then uses the speaker to address it. - The GPS module determines the user's location every 30 seconds.
-A fire sensor's job is tasked with locating nearby flames.- A water sensor is used to locate water nearby.
- A light sensor allows the user to determine whether it is day or night using a light sensor by listening to the speaker.

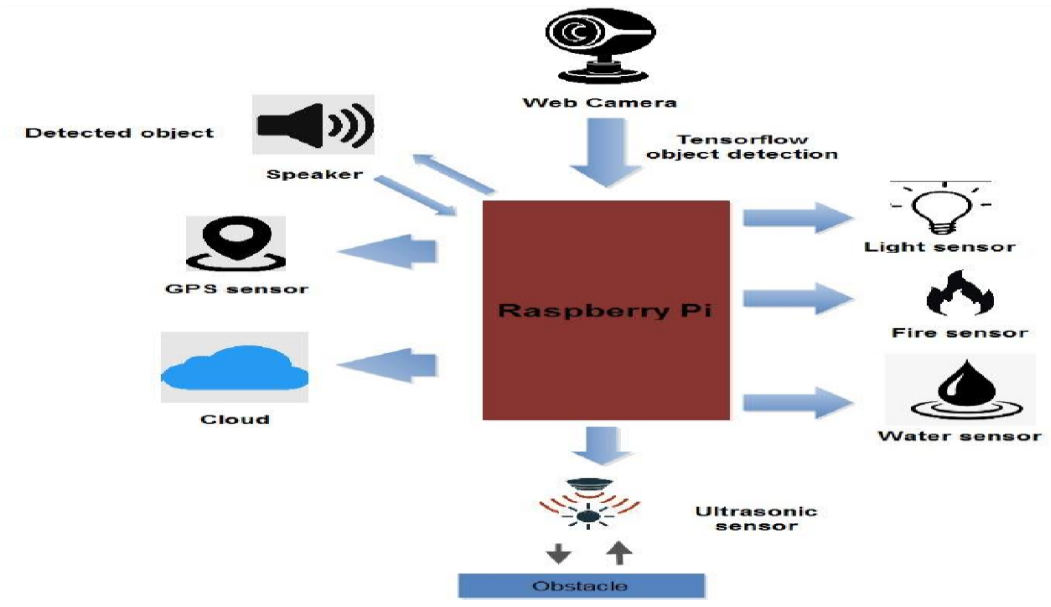

Fig: Architectural View of System

IV.MODELING AND ANALYSIS

- GPS: It is a global satellite navigation system that provides geolocation and timing information to a GPS receiver at any location on or near the earth where there is an unobstructed line of sight to four or more GPS satellites.

- Ultrasonic Sensors: ultrasonic/level sensors, as the name implies, use ultrasonic waves to measure distance. The sensor head emits an ultrasonic wave and picks up the wave that is reflected from the target. Ultrasonic and level sensors measure the distance of a target's distance by measuring the interval between transmission and reception.

- Buzzer: A buzzer or beeper is a mechanical, electromechanical, or piezoelectric sound signaling device (piezo for short). Buzzers and beepers are commonly used as alarm clocks, timers, train horns, and to confirm human input such as mouse clicks or keyboard input.

- Fire sensor: using various technologies, smoke detectors can detect tiny particles in the air to identify fires. Once they detect that these particles exceed a certain threshold, they trigger the alarm so that you and your family can escape.

- Water sensor: when installed in places where water should not be present, water sensors can also detect leaks. The sensor can send a notification to the homeowner via a smartphone app when Wi-Fi is enabled.

- Light Sensor: Light sensors pick up on the presence of light and convert that energy into an electrical signal. Radiant energy contained within the frequency spectrum from infrared to ultraviolet light frequency spectrum source can then be measured after conversion to electrical energy.

- Raspberry Pi: The Raspberry Pi is a small, inexpensive computer about the size of a credit card that connects to a computer monitor or TV and is operated with a standard keyboard and mouse. With the help of this powerful little device, people of all ages can learn about computer science and programming in languages like Scratch and Python.

Speaker: the Speaker acts as the representative, of the Chamber and delivers messages and speeches, e.g. to the Governor. He is also responsible for defending the privileges and rights of the House of Representatives and its members.

- Webcam: A webcam is a ubiquitous digital video device built into computers. Its primary purpose is to transmit images over the Internet. It is commonly used to capture images and for instant messaging applications.

- Tensor Flow Object Recognition: Tensor Flow object recognition is a computer vision method. As the name suggests, it helps identify, locate, and track an object in an image or video.

IV.RESULTS AND DISCUSSION

The development of an IoT-based navigation system for visually impaired people is a promising technology application of technology that has the potential to improve the quality of life for many people with visual impairments. This system uses a combination of sensors, GPS technology, and machine learning algorithms to provide users with real-time information about their surroundings and navigate them to their desired destination.

V.CONCLUSION

The Blind Stick serves as a versatile interface for easy and convenient internal and external mobility for visually impaired people in the next phase of assistive apps. It's safe and affordable. This results in effective obstacle detection along the direction of the user. It provides low-cost, reliable, lightweight, low-power and efficient navigation with fast response times. Wireless connectivity between the components of the device will enhance the additional features of this instrument, increasing the range of ultrasonic sensors and incorporating technologies to measure the intensity of approaching obstacles approaching. With this approach, we particularly targeted visually impaired and blind people in all developing countries. A vibrator can also be attached for ease of use and flexibility. This incorporates a system to locate the person via the GPS and GSM systems in order to reach parents or caregivers in the field.

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