

Advanced Detectable And Foldable Blind Stick.

Asst. Prof Ayesha Sultana, Mohd Bilal Ahmed, Md Zubair Uddin Adil, Syed Fahad Uddin

Department of Electronics and Communication Engineering, ISL Engineering College,
Bandlaguda, Hyderabad, India.

Abstract:

Blind individual finds it challenging to identify the presence of any snags in their manner while moving starting with one spot then onto the next Thus, the savvy stick comes as a proposed answer for help the outwardly weakened individuals in their everyday living without the assistance of others. In this paper we proposed an answer for the visually impaired individuals by involving a ultrasonic sensor in the visually impaired stick. and a pit sensor is utilized to detect the potholes and copper probe sensor is utilized

to identify the water level and sound speaker is utilized to provide the voice order of the obstacles. The gps tracker is utilized to follow the area of the visually impaired person. The vibration engine which is set in the savvy stick gets actuated and delivers a vibration when any snag is recognized. This proposed technique involves the Arduino UNO as regulator. The branch accomplished of detecting all hardships before the client.

Aim of The Project :-

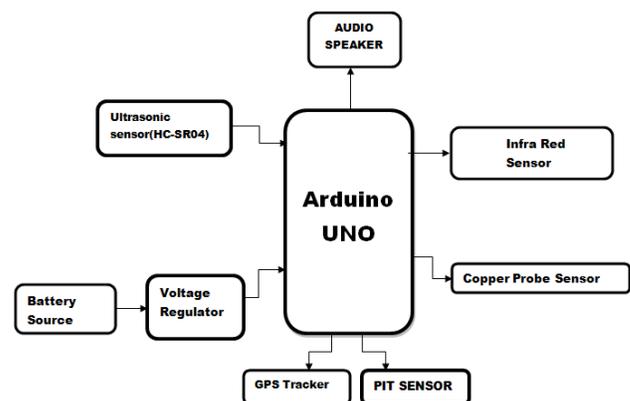
"he circuit fills in as .at whatever point a visually impaired individual moves with this stick, this will recognize the forthcoming hindrances utilizing ultrasonic sensor and gives an admonition signal by giving a sound command "FRONT OBSTACLE" and "RIGHT/LEFT OBSTACLE"

Pit sensor is utilized to distinguish the pothole, and copper test sensor is utilized to recognize the water Level.

The brilliant stick is of easy to use, speedy reaction, extremely low power utilization, lighter weight and it is not difficult to hold and overlay by the client and it is convenient.

the GPS tracker is utilized to identify the area of the visually impaired individual

BLOCK DIAGRAM



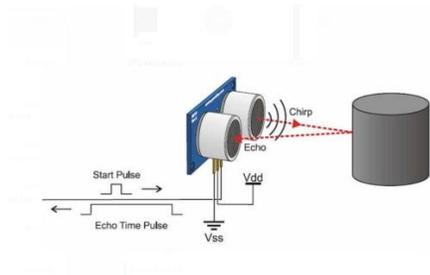
Major components :-

1.Power source : power bank

This is the major component of this project as it supply the power through power bank . The whole circuit works with the help of power bank as .It contain the battery capacity of 10000 mah

2.Ultrasonic sensors

Ultrasonic sensors work by sending out a sound wave at a frequency above the range of human hearing. The transducer of the sensor acts as a microphone to receive and send the ultrasonic sound. Our ultrasonic sensors, like many others, use a single transducer to send a pulse and to receive the echo. The sensor determines the distance to a target by measuring time lapses between the sending and receiving of the ultrasonic pulse.



3. Arduino UNO

Arduino UNO is a microcontroller board based on the ATmega328P. It has 14 digital input/output pins (of which 6 can be used as PWM outputs), 6 analog inputs, a 16 MHz ceramic resonator, a USB connection, a power jack, an ICSP header and a reset button. It contains everything needed to support the microcontroller; simply connect it to a computer with a USB cable or power it with a AC-to-DC adapter or battery to get started. You can tinker with your UNO without worrying too much about doing something wrong, worst case scenario you can replace the chip for a few dollars and start over again.



4. GPS tracker

GPS individual GPS beacons are utilized under the watchful eye of the older and defenseless and can be utilized to follow little kids who might get into danger.[8][9] Some gadgets can send message notifications to carers assuming the wearer moves into an unforeseen spot. A few gadgets permit clients to call for help and alternatively permit assigned carers to find the client's situation, normally inside five to ten meters. Their utilization advances free living and social consideration for the older. Gadgets frequently consolidate possibly one-way two-way voice correspondence. A few gadgets likewise permit the client to call a few telephone numbers utilizing pre-customized speed dial buttons. Preliminaries involving GPS individual GPS beacons for victims of beginning phase dementia are in progress in a few nations. Message and voice correspondence is generally given by an association with portable communication, yet GPS gadgets are accessible that utilization satellite interchanges, consistently accessible regardless of whether out of cell phone territory.



5. IR Sensor.

An infrared sensor (IR sensor) is a radiation-sensitive optoelectronic component with a spectral sensitivity in the infrared wavelength range 780 nm ... 50 μm. IR sensors are now widely used in motion detectors, which are used in building services to switch on lamps or in alarm systems to detect unwelcome guests. In a defined angle range, the sensor elements detect the heat radiation (infrared radiation) that changes over time and space due to the movement of people. Such infrared sensors only have to meet relatively low requirements and are low-cost mass-produced items. InfraTec does not supply such products, InfraTec develops, produces and sells pyroelectric detectors.

6. Audio speaker.

Speakers are transducers that convert electromagnetic waves into sound waves. The speakers get sound contribution from a gadget like a PC or a sound beneficiary. This info might be either in simple or computerized structure. Simple speakers essentially enhance the simple electromagnetic waves into sound waves

7. copper probe sensor

Water sensor block is intended for water recognition, which can be generally utilized in detecting precipitation, water level, and, surprisingly, fluid leakage. Connecting a water sensor to an Arduino is an incredible method for identifying a break, spill, flood, downpour, and so on. It very well may be utilized to identify the presence, the level, the volume and additionally the shortfall of water. While this could be utilized to remind you to water your plants, there is a superior Woods sensor for that. The sensor has a variety of uncovered follows, which read LOW when water is identified.

In this section, we will associate the water sensor to Advanced Pin 8 on Arduino, and will enroll the

extremely convenient Prompted help distinguish when the water sensor comes into contact with a wellspring of water.



WORKING :

working The of this stick is straightforward as the sensor distinguishes any hindrance in front or at any side it will get actuated

Also, makes a motion to micriocntroller that gives the adequate message through the sound speaker and ringer

this stick have mainly three ultrasonic sensor and one infrared sensor ,the three ultrasonic sensors are placed in such a manner that one sensor is placed in front side and the other two are placed in both the sides of the stick so that this stick will cover all the three sides and helps a person with the obstacles from all the three sides ,the range of the sensor can be adjusted as our requirement but in our stick we kept the range to 50cm ,so whenever there is a obstacle in the 50cm range the sensor will get activated and provide the necessary operation

Advantages

1. It will save the old man from any type of obstacles.
2. It will be very helpful to blind people.
3. We can also fit a GPS chip into this if we require it, it will help us to find the exact location of the old person.

4. It will help to find the direction of the walk of the blind person.
5. It also has a night light for a clear view of the street.

Applications

1. An innovative stick is designed for the visually disabled people for their easy navigation.
2. This stick can even detect the water level through the copper probe sensor
3. This stick contains GPS tracker through which the live location of the blind person can be located
4. application for blind people to detect the obstacles in various directions, detecting pits and manholes on the ground to make free to walk

CONCLUSION

We deduce in our task that this stick is a distinct advantage and can assist the visually impaired individuals with strolling at any spot freely without assistance of others, This stick is foldable and versatile and can be conveyed anywhere effectively and in the event that in the event that the stick is miss put, it tends to be handily identified by utilizing GPS tracker`

REFERENCES

- [1] World Health Organization. Visual impairment and blindness, 2011.
Available:
<http://www.who.int/mediacentre/factsheets/fs282/en/>
- [2] Denis Tudor, Lidia Dobrescu, Dragoş Dobrescu, "Ultrasonic electronic system for blind people navigation," 5th IEEE International

Conference on E-Health and Bioengineering - EHB 2015 Grigore T. Popa University of Medicine and Pharmacy, Iaşi, Romania, November 19-21, 2015.

[3] BrainPort Technologies. BrainPort® V100, 2015. Available
http://www.wicab.com/en_us/v100.html

[4] Ultracane, 2015. Available
<http://www.ultracane.com/>

[5] Sanchez, J.; Oyarzun, C. Mobile Assistance Based on Audio for Blind People Using Bus Services. In *New Ideas in Computer Science Education (In Spanish)*; Lom Ediciones: Santiago, Chile, 2007; pp.377–396.

[6] Mahdi Safaa A., Muhsin Asaad H. and Al-Mosawi Ali I. Using Ultrasonic Sensor for Blind and Deaf persons Combines Voice

[7] Regalado Melo Rosa P., *Bengala de apoio a cegos com detecção de buracos*, Dissertação de Mestrado, Universidade de Aveiro, 2009.