

A SMART COMBO STICK FOR BLIND PERSON

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Abstract— According to world health organization (WHO) global data on visually impairment nearly 39 million people around worldwide facing eye blindness problem . Now days reseacher are paying more attention to help these type of person .this work is an attempt to help blind persons . we developed a combo smart stick which assist the visually impaired persons,our developed system enable visually impaired person to find difficulty in front of them during walking. The system consists of five sensors: Ultrasonic sensor , LDR sensor , water detecting sensor , clap detecting sensor , fire detecting sensor. We use micro controller Arduino Uno to receive the signal from sensor and proceed to the short pulse to the buzzer pin and vibrator.we use pin drop GPS navigation to locate user current location. we seek in our project to provide a affordable smart combo stick suitable for most blind person

Keywords—*Micrcontroller,ldr,untrasonic,firedetection,waterdetection,clapdetection*

I. INTRODUCTION

Globally, it's assessed that in any event a pair of.2 billion people have a visually incapacity . This one billion people incorporates those with moderate or serious separation vision hindrance or visual deficiency owing to unaddressed refractive blunder (123.7 million), water (65.2 million), eye disease (6.9 million), tissue layer opacities (4.2 million), diabetic retinopathy (3 million), and eye disease (2 million). Blind person have trouble to interact and sense their condition. they need very little contact with encompassing. Phove beginning with one zone then onto the close To explore dark spots he will bring physical improvement is a test for apparently weakened individuals, due to it'll make as dubious to separate in which he seems to be, and a procedure to get wherein he needs to ma located relative or his buddy for help.. Over 1/2 of the lawfully visually impaired people in the world are out of work. Because confined on the types of jobs they might do. they need a far less percent of work. They are counting on their families for movability and financial support within the course of the foremost recent decades, consider has been diode for brand spanking new gadgets to structure an honest and solid framework for externally disabled individuals to differentiate deterrents and caution them at danger places .Our task means that to structure and execute of a clever and modest follow international Positioning Framework (GPS) for the externally obstructed individuals teams, which is able to establish the hindrance and obstacle within the method

II. HARDWARE REQUIREMENT

Arduino Uno : is Associate in Nursing ASCII text file platform used for building natural philosophy comes.

Microconcrroller arduino made of a physical programmable printed circuit (often said as a microcontroller) and a bit of software, or IDE (Integrated Development Environment) that runs on your pc,

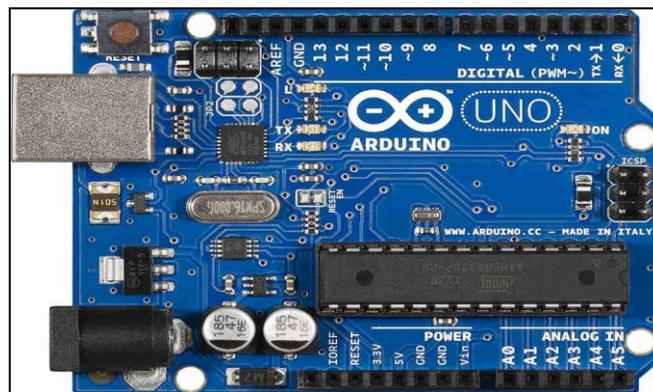


Fig 1: arduino (Uno)

Ultrasonic sensor : A ultrasonic sensor is a gadget that checks the partition to a thing using ultrasonic sound waves. A ultrasonic sensor uses a transducer to send and get ultrasonic pulses that hand-off back information about a thing's region reflected sound converted into a electrical signal

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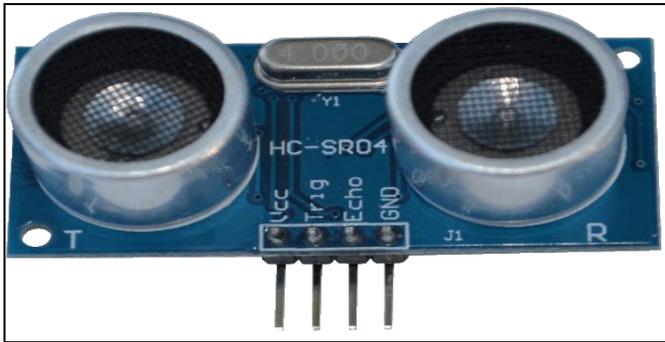


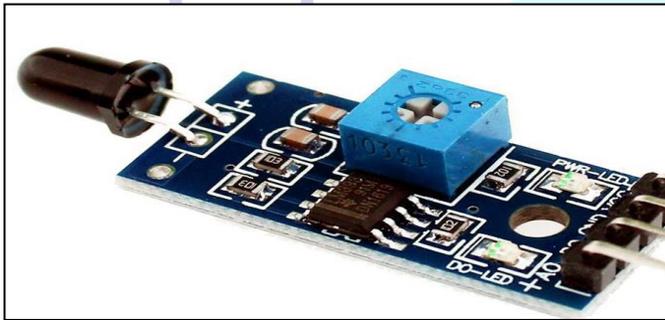
Fig 2: Ultrasonic Sensor

LDR sensing element : This resistor works on the principle of image conduction. It's nothing however, once the sunshine falls on its surface, then the fabric conduction reduces and conjointly the electrons within the valence band of the device square measure excited



Fig 3: LDR

Fire detection sensor: A hearth detector works by police work smoke and/or heat. These devices reply to the presence of smoke or extraordinarily high temperatures that square measure gift with a hearth. Once the device has been activated, it'll send a proof to the warning device



CLAP DETECTOR SENSOR : clap detection sensor which will ignore background noises and will only react to hand clapping or finger snapping.



Fig 5: clap detecting sensor

WATER DETECTING SENSOR: A water sensor is situated at the base of the stick to have precautionary measure against the wet surface which it can causing slipping on the floor and hence can hurt. At the point when the water sensor comes in contact of the wet surface, it delivers an electrical sign to the bell.

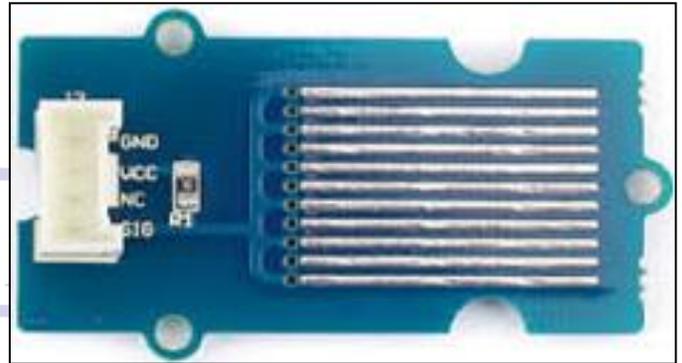


Fig 6: water detector sensor

III. PIN DIAGRAM

| Ultrasonic sensor | Arduino |
|-------------------|---------|
| vcc | 5v |
| gnd | gnd |
| Trig pin | Pin 10 |
| Eco pin | Pin 9 |

Table 1: Connection between ultrasonic sensor and Arduino

| Battery | Arduino |
|---------|---------|
| +ve | Vcc |
| -ve | Gnd |

Table 2: Connection between battery and Arduino

| Buzzer | Microcontroller |
|-----------|-----------------|
| 1.(+) ve | Pin2 |
| 2. (-) ve | gnd |

Table 3: Connection between buzzer and Arduino

IV. CIRCUIT DIAGRAM

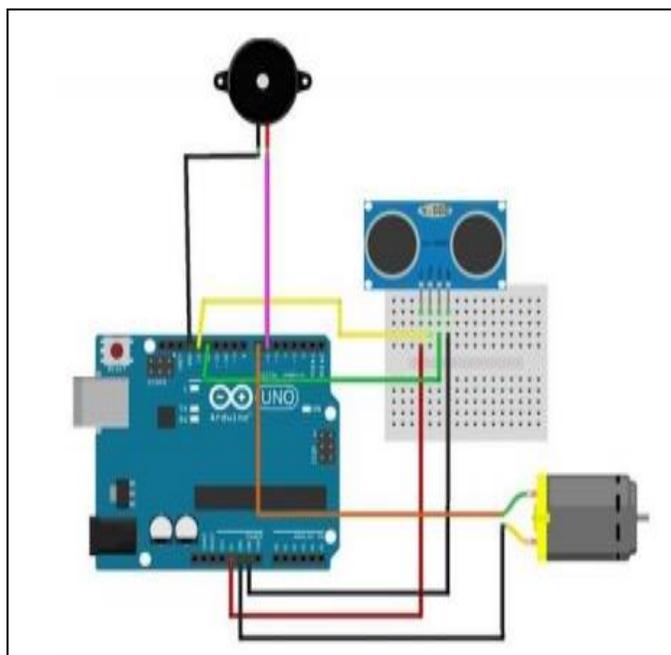


fig 7: circuit diagram

In the on top of define we have a tendency to preponderantly associate supersonic device and bell to the arduino uno and that we have done separate associations for remainder of the device like heatsensor, watersensor, LDR sensor, applaud device and gps route. supersonic GND to Arduino GND. Ultrasonic TRIG to Arduino D12. supersonic ECHO to Arduino D11. Buzzer RED to Arduino D8. Buzzer BLACK to Arduino GND. Vibrator motor pin one to Arduino D7. Vibrator motor pin a pair of to Arduino GND

V. WORKING PROCEDURE

There are two openings in Ultrasonic sensor initially is transmitter (or Trigger) and second is collector (or Echo). Ultrasonic sensor sends high recurrence beats, these heartbeats reflects from item and takes as Echo, time among reverberation and Trig is estimated by the microcontroller or Arduino which is legitimately relative to remove. The speed of sound is 341 meter for every second noticeable all around, and the separation among sensor and article is equivalent to time duplicated by speed of sound partitioned by two. Separation = (Time * Speed Of Sound) ÷ 2 After the separation estimation, Arduino makes a signal organization utilizing bell, when separation is high, recurrence of blare is diminished and blare recurrence is expanded when separation is low The scope of HC-05 Ultrasonic sensor isn't high, it can just gauge 50cm in open space, for more separation numerous other ground-breaking sensors are accessible in the market.

VI. RESULTS

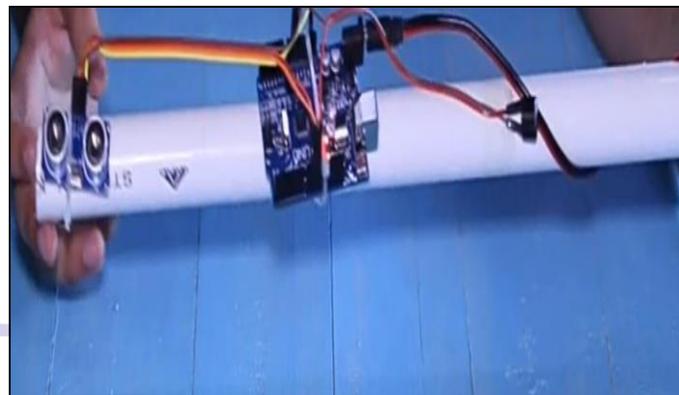


Fig 8 : smart combo stick

VII. CONCLUSION AND FUTURE SCOPE

With the proposed engineering, whenever developed with all things considered precision, the visually impaired individuals will ready to move starting with one spot then onto the next without others help, Which prompts increment self-sufficiency for the visually impaired. The created Smart stick that is joined with numerous sensors will help in exploring the way while strolling and keep disturbing the individual if any indication of burden is identified. The created model gives great outcomes in recognizing obstructions paced at separation before the client; it will be genuine aid for the visually impaired. Simultaneously worldwide situating framework (GPS) can be connected with the stick for route, with the goal that individual can know his present position

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