SMART WHITE STICK FOR SIGHTLESS PEOPLE

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BACKGROUND

Blindness means an inability to see or lack of eye sight. The whole world looks pitch black in front of their eyes. Besides, one may have a blurry vision because of cataracts. At that point, they need support to survive in every step of their life. Sometimes they try to walk or to fulfill their primary need by white stick.

Though it's risky enough as they cannot sense any obstacle in front of them. It would be more dangerous when the surroundings get dark. Not even a single sighted person able to see in the dark.

PROPOSED SOLUTION

Our idea is to make a white stick that can alert its user about obstacles and also alert the people in front of the user intensity in the darkness by frequent LED blinking.
The major work done to build that white stick is to measure the distance of obstacle and light intensity coming from the obstacle.

- To measure the distance obstacle, here we are using ultrasonic sensor.
- To determine the darkness, here we are using LDR.

The Frequent LED Blinking

Sensing Obstacle Buzzer
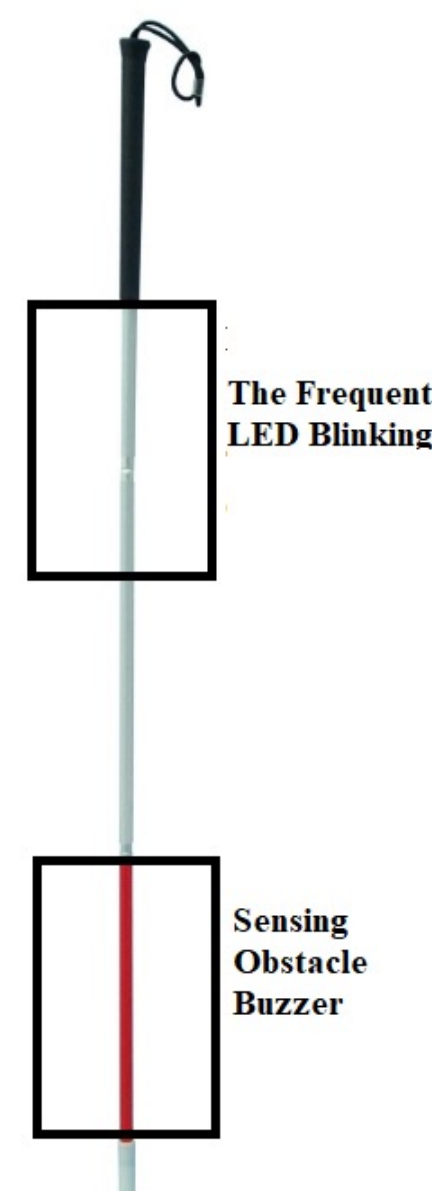
SYSTEM DESIGN

**Major Components:**
Three major components are being used in this project. They are-
1. Arduino Micro-controller
2. LDR
3. Ultrasonic Sensor.

Arduino Micro-controller:
Arduino, which is an open-source platform used in different electronics, consists of both a physical programmable circuit board, also referred as microcontroller and a piece of software, or Integrated Development Environment (IDE) that runs on computer.
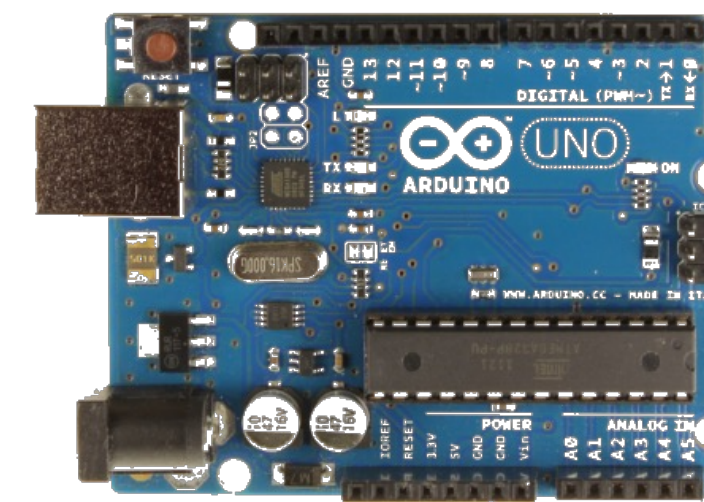
LDR (Light Dependent Resistor):
LDR is basically a light sensor. It has a variable resistance that changes with the light intensity that falls upon it. This allows them to be used in light sensing circuits.
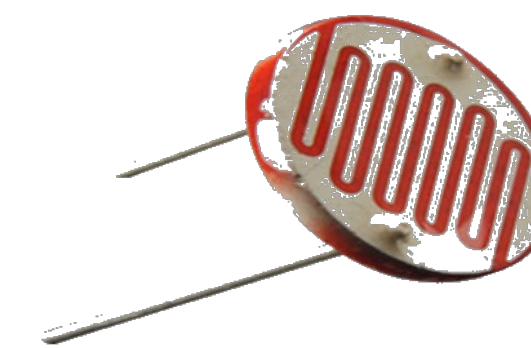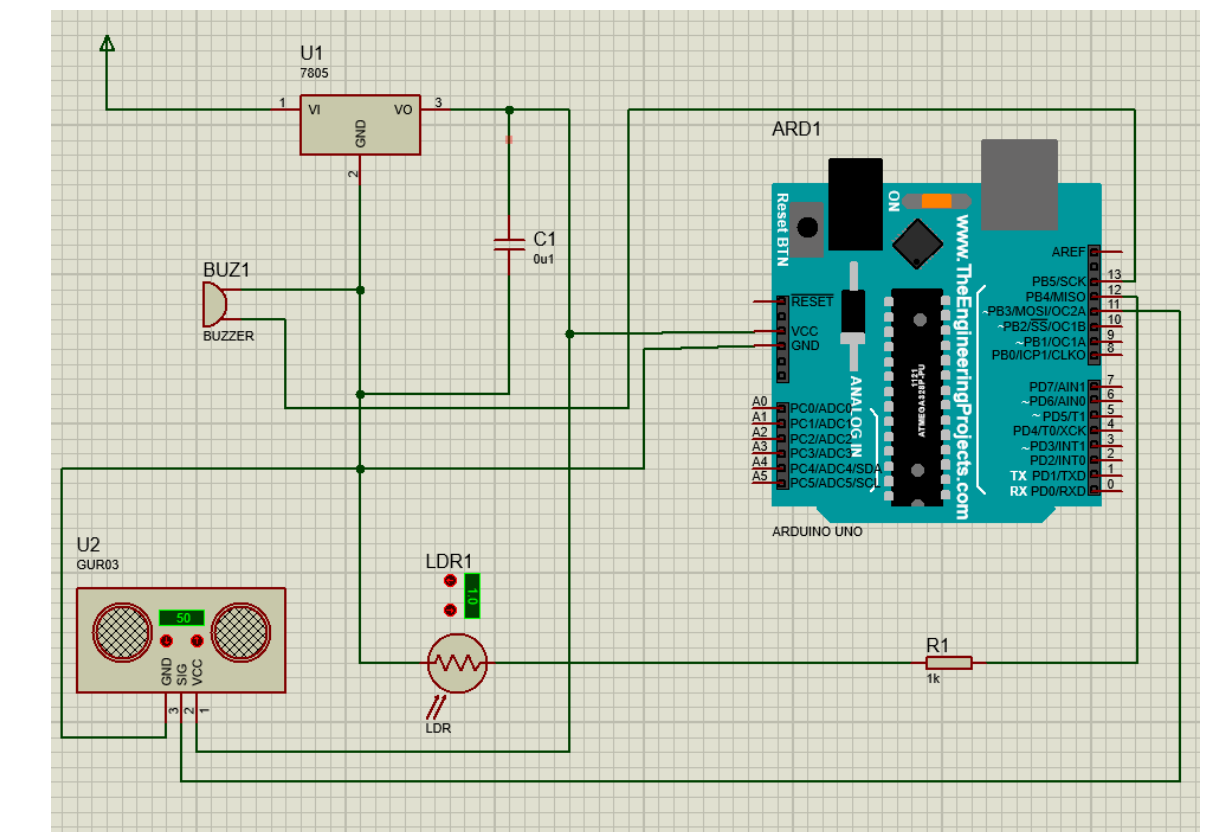
Ultrasonic Sensor:
These type of sensors measure distance by using ultrasonic waves. It creates an ultrasonic wave and receives the wave reflected back from the target appeared in front. Ultrasonic Sensors measure the distance to the target by measuring the time between the emission and reception.
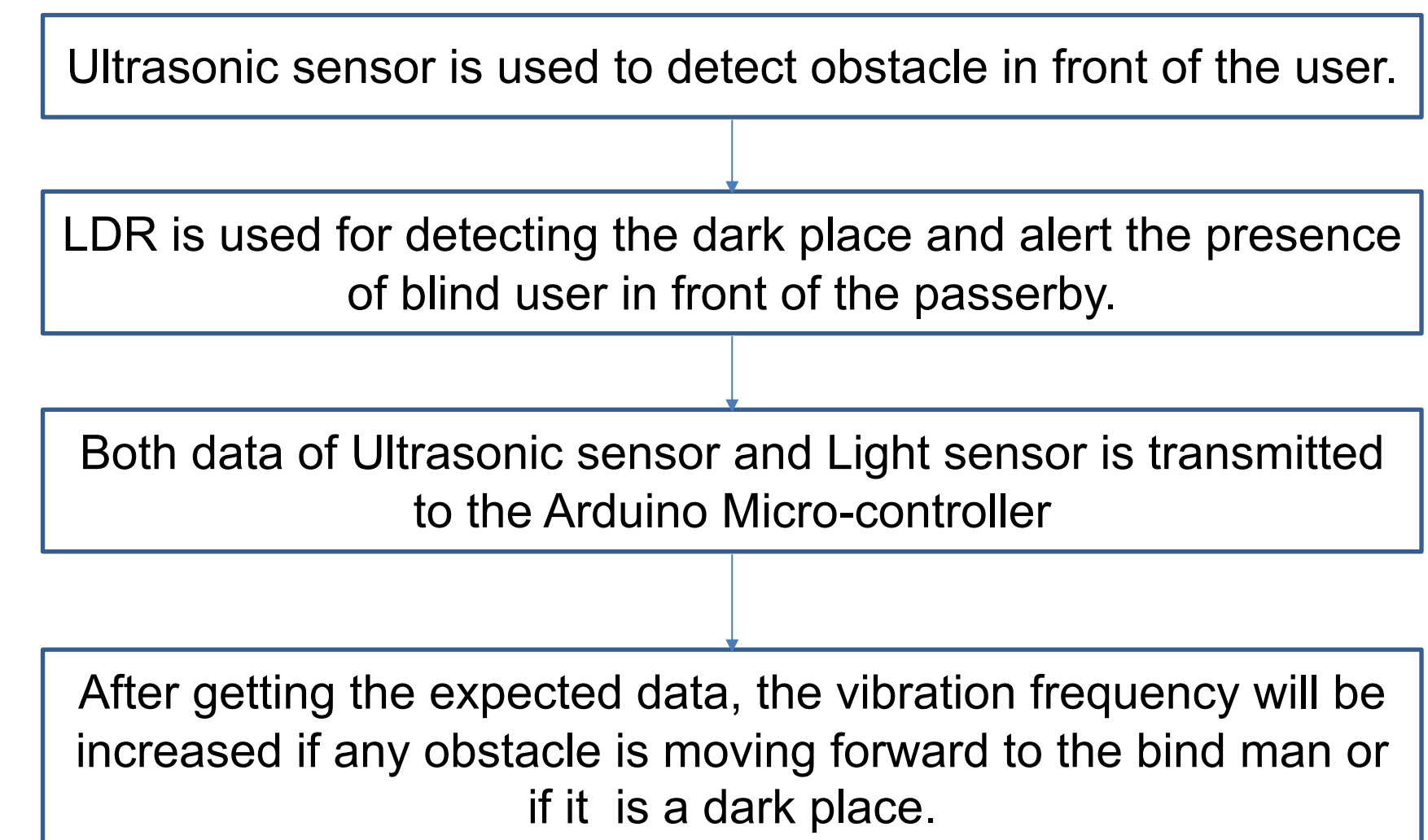
FUTURE DIRECTION

- Although it can detect most of the obstacle, it cannot detect the obstacle that does not attach with the ground. However, it can not detect the hole in the walkway. For this reason, another ultrasonic sensor can be used at the end of the stick.
- An GPS sensor can be used to detect the location.

CONCLUSION

This blind stick can not only help him to alert from any obstacles but also help to assume whether it is dark place or not by the increasing the vibration level of buzzer and LED. By this way, a blind man move or walk by his own will.

Circuit Design:

Workable Design:
The multiple LEDs along with LDR will be placed at the top side of the stick.
The Buzzer along with ultrasonic sensor will be placed at the bottom of the stick.

Process:

Ultrasonic sensor is used to detect obstacle in front of the user.

LDR is used for detecting the dark place and alert the presence of blind user in front of the passerby.

Both data of Ultrasonic sensor and Light sensor is transmitted to the Arduino Micro-controller

After getting the expected data, the vibration frequency will be increased if any obstacle is moving forward to the bind man or if it is a dark place.

CONTACT INFORMATION

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