E-CELL

ENDEAVOUR"23

"THE UNPARALLELED SPECTRUM"

BLUINO

A REAL TIME ASSISTANT FOR VISUAL IMPAIRMENT....

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PROBLEM STATEMENT

People with visual impairment are part of our society who have the same rights as a citizen which has limited mobility. Arduino is a microcontroller-based technology that can be used as walking assistance. We here by propose ‘Bluino’ as walking support for visual impairment students.

INTRODUCTION

- In life, we will never get perfection, including about the human birth with disabilities are also part of our society who have the same rights as a citizen.

- One example of disabilities are people with visual impairments. They are a part of society that has limited mobility in an environment and social life.

- People with visual impairments, when they will go somewhere, they have to be accompanied by someone as a navigator or using a stick which facilitates them to their destination.

BLUINO & IT'S IDEA

- People with visual disabilities suffer a lot in current time. As we see ourselves as prime example in it, we have to use spectacles or contact lenses to increase our visual prowess but there is not any useful thing for visually impaired people.

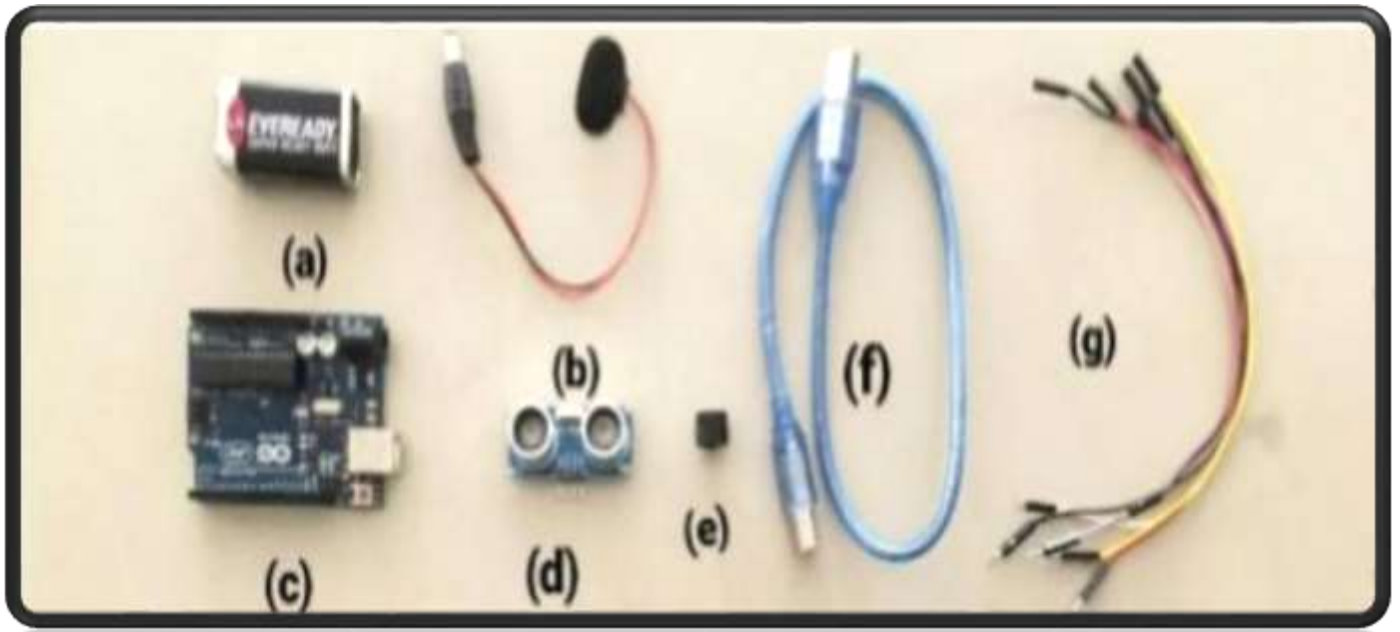
- We hereby propose 'Bluino' as walking support for visually impaired students. It is equipped with an ultrasonic sensor HC-SR04 to detect an object approx 100 cm in range, which will trigger the buzzer to produce sound.

TECH-STACK / FLOW OF DEVELOPMENT

- The technology used is IOT(Internet of Things), describes physical objects with sensors, processing ability, software and other technologies that connect and exchange data with other devices and systems over the Internet or other communications networks.

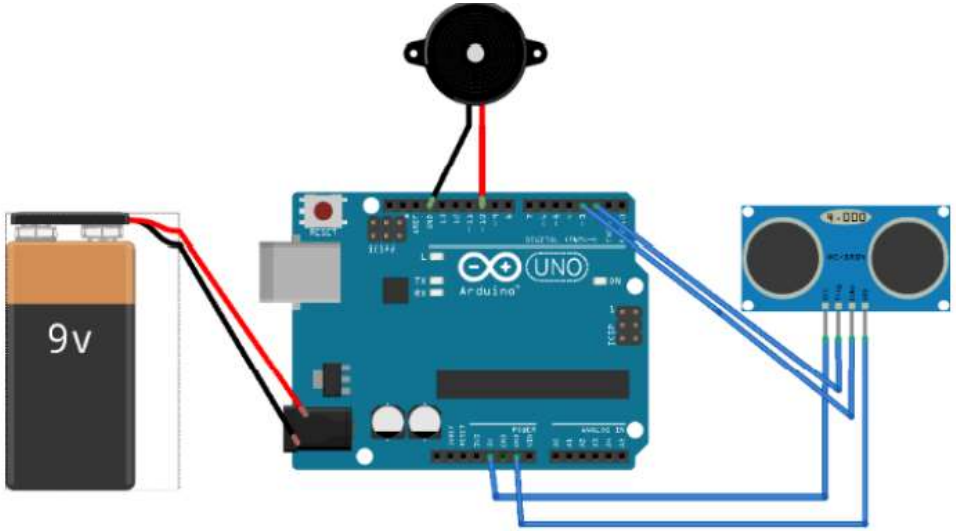
Instruments used are :-

a) 9 Volt Battery
b) Snap Connector
c) Arduino Uno R3 ATmega328P
d) Ultrasonic Sensor HC-SR04
e) Buzzer
f) USB Cable
g) Male to Male Cable Connector
h) Cap

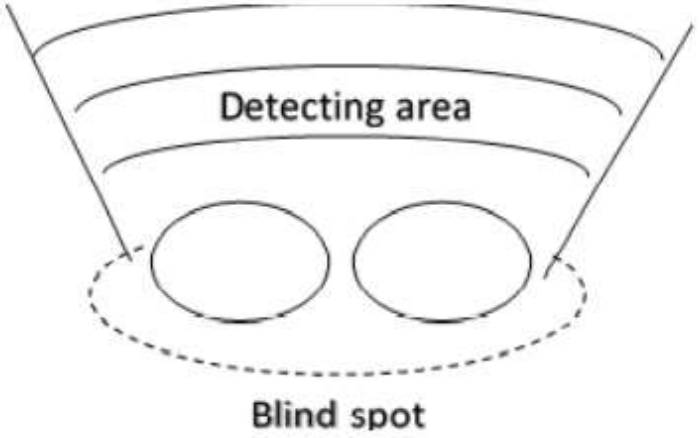


WORKING

First step of making, Bluino is to design the code that has to be uploaded to the board through IDE, So that we can control the device. So, we initialized ultrasonic HC-SR04 pins in the code then initialized the buzzer pin and in last we initialized variable which calculates the distance of the objects.



Schematic view of Bluino



Blind Spot of the ultrasonic sensor

Real Time Application

This Arduino Project is developed in 3 phases :-

PHASE 1:

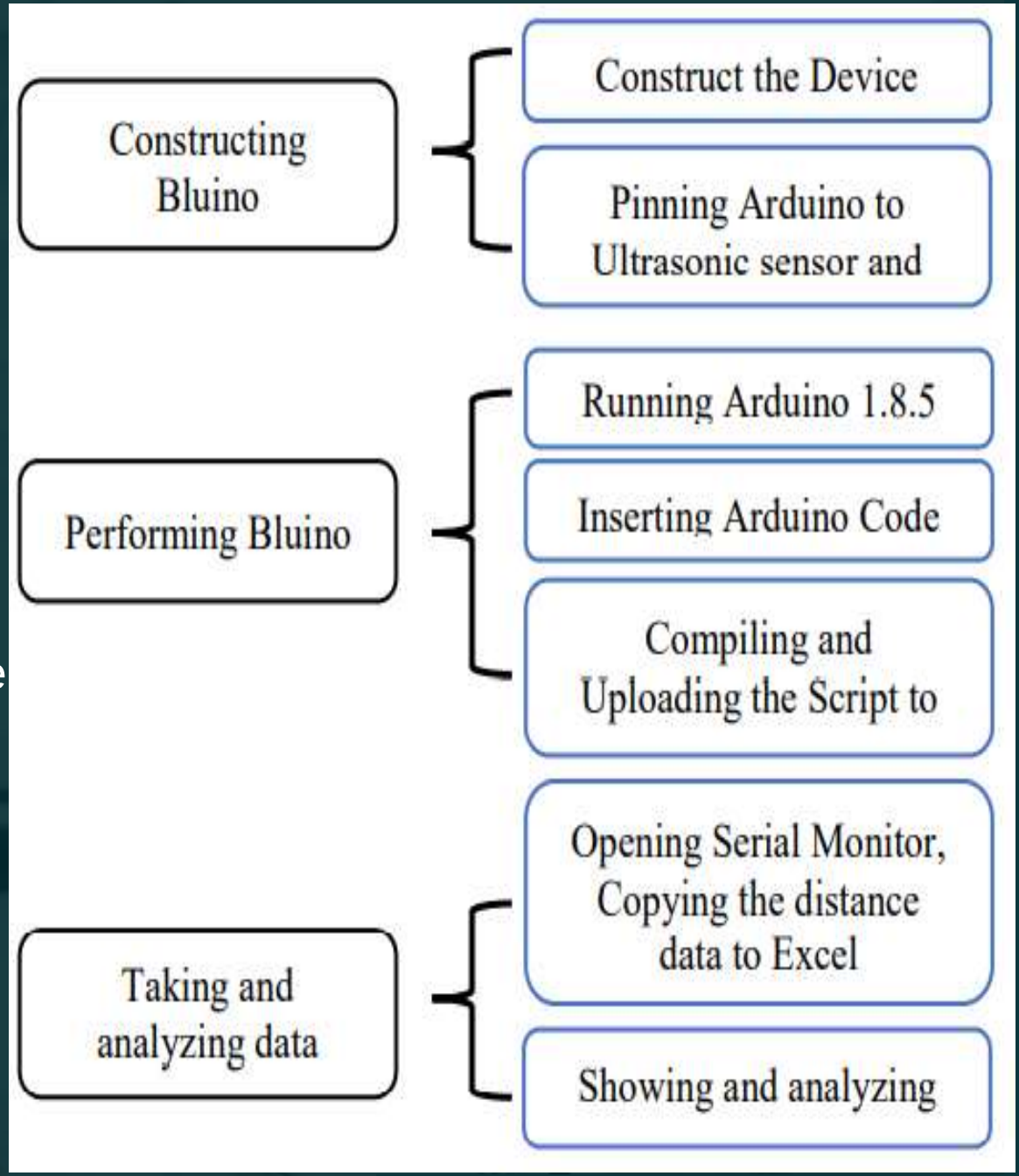
Here all the components related to this project are assembled and pinned together and the construction of device took place.

PHASE 2:

In this phase the software implementation of the project took place and hence the algorithm is designed to make the Bluino functional and therefore took the help of Arduino IDE software.

PHASE 3:

Here comes the final stage of our project and now we can connect serial monitors that helps us to show the graph and analytics of the Bluino when working although this is a developing stage of our project.



USP & SCALABILITY OF SOLUTION

- Implementing with the help of Arduino Nano board to reduce it’s size to make it more user friendly.
- Making it more Affordable and Effective for visually impaired people.
- Implementing the BLUINO model in form of Body Kit for wide range of obstacle coverage.

FREQUENT ERRORS

- Battery Issues
- Connections
- Sensor failure

CONCLUSION

- Bluino can be very helpful for visually impaired people by using the ultrasonic sensor to detect object distance and send an audio signal to warn the user.
- Bluino itself has a simple schematic scheme, so it easy to make customizations according to the user or customer.
- This is just a prototype, we are working on it to make it work in a bigger picture with more exactness for the visual impaired people.

THANK YOU