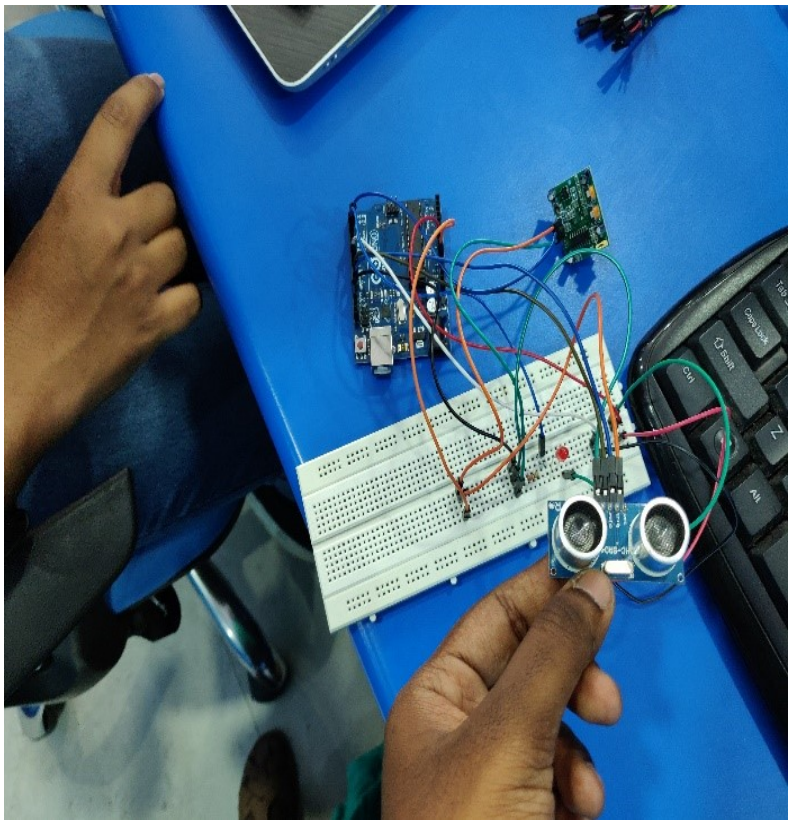


SMART STICK

AN VIRTUAL EYE

Namratha L B | AccelATHON| 12th-14th April 2019

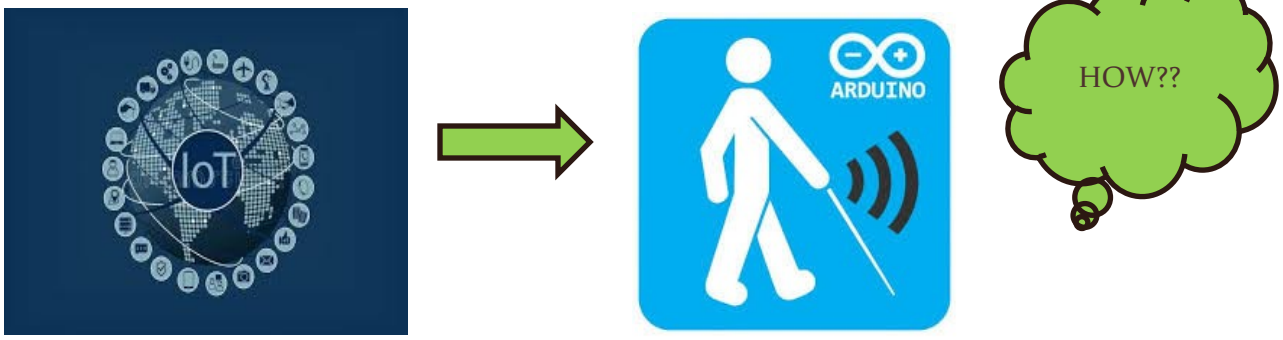
Problem Statement:

To Provide an IoT Solution for Assisting People with Disability.

Topic Chose:

For this problem I and my Team have come with a solution to Blind people.

> **Blind people face a lot of problems while travelling on their own. Many of these problems are finding obstacles/objects on their way, emergency situations, not aware of their surroundings and many others. This makes their journey unsafe so we are developing an IoT solution that can aid them and ease their travelling experience.**



Solution Provided:

- We are developing an IoT based solution for assisting blind people. The solution we are developing will help blind people to navigate hassle free.
- This solution on a large scale will be embedded on the walking stick of blind people. This solution will be able to detect objects/obstacles on the way and will alert the blind person with the help of buzzer sound.
- It also houses geo-location capacity through which the coordinates of the blind person can be shared with their contacts so tracking the blind person would be much easier.
- This also has an option where human movement can be detected and nearby passengers can be alerted in case of an emergency.

My Individual Work:

As the Team Leader of the competition group I and one of my teammate came up with this Idea. My Role in this project was coding the basic functionality or working of the smart stick which was detecting the objects along the way using Ultra sonic sensors and also to provide code for determination of Geo-location by Using nearby routers and its distance, which will use our WIFI location around us by using GOOGLE geolocation API which will give us the co-ordinates of the that particular NODE MCU 8266.

Working:

- When a blind person is walking if an obstacle is sensed in the way the buzzer connected to the sensor beeps.
- Ultrasonic sensor detects the object and calculates the distance.
- PIR sensor takes the input from ultrasonic and changes its state to HIGH from LOW and makes Led glow.
- Once the led is glowing we use buzzer to make noise so that person can know that there is an object infront of him.
- If the scenario changes where the blind person don't know the way or lost he can contact his family or guardian.
- This is achieved through simple mechanism that is using NODE MCU 8266.
- we have created a program which will use our WIFI location around us by using GOOGLE geolocation API which will give us the co-ordinates of the that particular NODE MCU 8266.
- Once the co-ordinates are entered in maps the person ca track the blind person and take him back home.

Complexity Faced:

- The geolocation is calculated using the location of the wifi networks around us and the signal strength of the network determines the location or accuracy.
- The signal around the college for a Hotspot is very less and the network jam or the signal strength of the network is very less.
- NODE MCU is not able get the Exact location due to these factors.

Experience Gained/ Conclusion:

- From this project we are able to detect the object using smart stick which would help blind people to have an extra pair of eye for Navigation.
- Using sensors to detect the object for within a given range and using PIR to blink led and turn on buzzer by making blind person to hear.
- Technology and Humanity is going hand in hand.
- There is a lot of room for improvement and development in this project which helps us to make World a better place.

Finally, we can conclude As the Saying goes -

"Disability Is Nothing but I Am Differently Able".