

# **BMS INSTITUTE OF TECHNOLOGY & MANAGEMENT**

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## **DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING**

Synopsis for the Mini Project

“SMART BLIND ASSISTANCE SYSTEM”

Submitted By:

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## **Abstract:**

*This project describes blind walking stick with the use of arduino. According to WHO, 30 million people are permanently blind and 285 billion peoples with vision impairment . If we notice them , we can very well know about it they can't walk without the help of other. One has to ask guidance to reach their destination. They have to face more struggles in their daily life. Using this blind stick , a person can walk more confidently. This stick detects the object in front of the person and give response to the user either by vibrating or through command. So, the person can walk without any fear. This device will be best solution to overcome their difficulties .*

## **Introduction:**

*Technology can indeed neutralize human disability; with this in mind let us use the power of **Arduino and simple sensors to build a Blind man's stick** that could perform more than just a stick for visually impaired people.*

*Our model mainly focuses on people who only have disability in vision. Because we are passing audio messages once sensors identify solid objects, humans, animals and moving objects. There are two types of blind people;*

*1. Blind from birth*

*2. Blind after accidents*

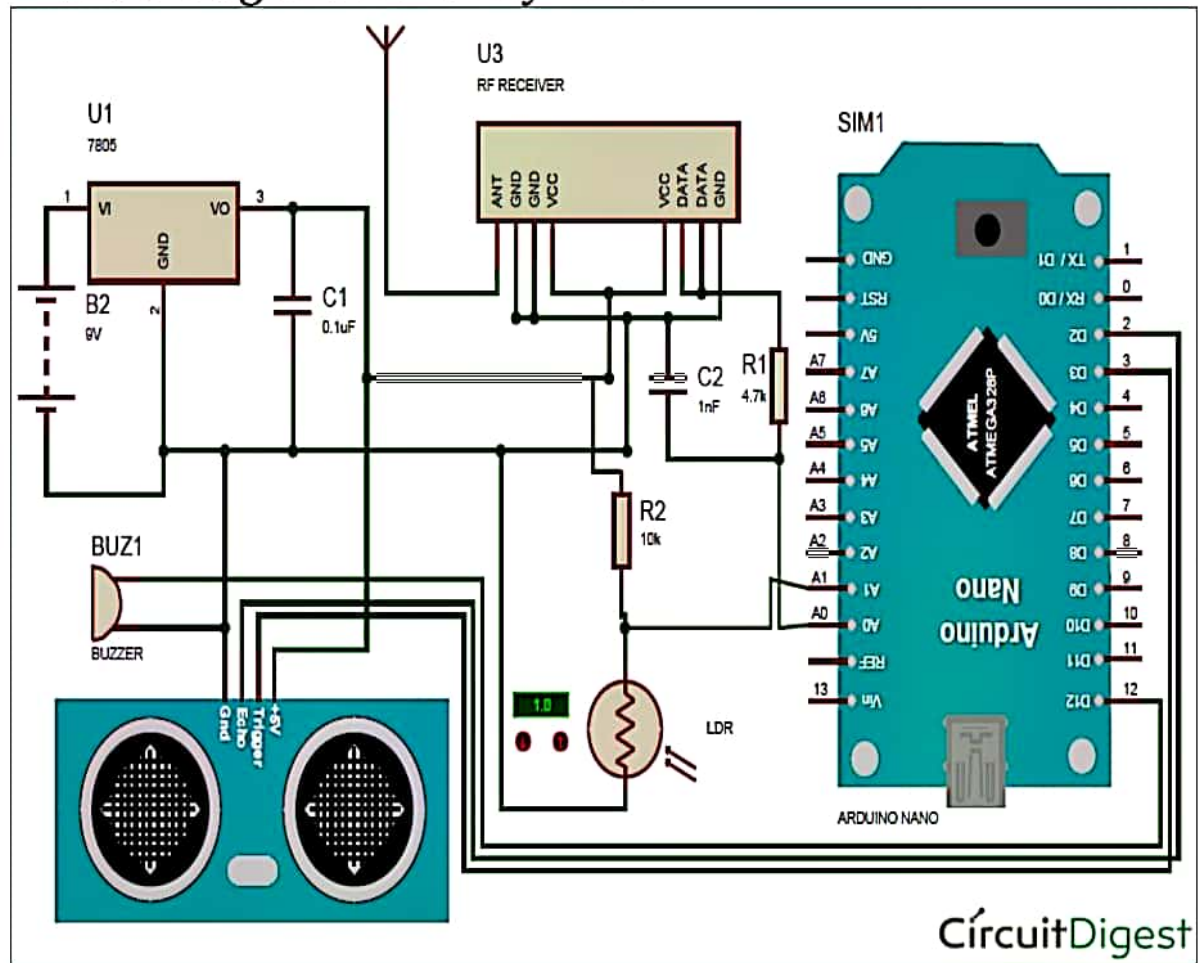
*People who lost their vision from the birth, their other senses are sharpend from the birth. Therefore, they can train their other senses quite fast but people who lost their vision after accidents such as bomb blasts, vehicles accidents etc. hard to train their other senses. It takes long time to train.*

*For this type of people our invention, "**Smart Blind Stick**" is really useful. During the training period this Smart Bind Stick helps them to manage there day to day life activity. This smart blind stick is very user-friendly object for these people.*

## **Motivation:**

*The main motive is to alert visually impaired people over obstacles and water in front could help them in walking with less accidents.*

## Circuit diagram of the System:



## Materials required:

- *Arduino Nano*
- *Ultrasonic Sensor HC-SR04*
- *LDR*
- *Buzzer and LED*
- *433MHz RF transmitter and receiver*
- *7805*
- *Resistors*
- *Capacitors*
- *Push button*
- *Perf board*
- *Soldering Kit*
- *9V batteries*

## **Future Scope:**

- *A variety of future scope are available that can be used of with the stick such as usage of Global positioning System can help the blind person to source to destination route information.*
- *GPS can help to find the shortest and best path as accordingly to Google ( Bing map based on real time co-ordinates).*
- *GSM attachment can help in future for any immediate casualty help.*
- *It can also contain special arrangement to connect the walking stick to aadhar card of blinds, helping the government serve the physically disable even better.*
- *Water sensor that sense any kind of water allowing the safe walk of the blind people in order to avoid slipping .*

## **Advantages and Applications:**

- *Auto Detection*
- *Avoid the obstacle based on ultrasonic sensor.*
- *Simple to use*
- *Less accidents will be occurred from blind people*
- *Low cost*
- *Paper less system*
- *Auto alarming system*

## **Limitations:**

- *They cant detect obstructions that are hidden but very dangerous for blind such as downstairs,holes etc.*
- *Little sensor support in these field.*

## **References:**

- *<https://www.irjet.net/archives/V5/i3/IRJET-V5I3586.pdf>*
- *T. Ifukube, T. Sasaki, and C. Peng, "A blind mobility aid modeled after echolocation of bats," IEEE Transactions on Biomedical Engineering, vol. 38, no. 5, pp. 461–465, 1991.*
- *S. Cardin, D. Thalmann, F. Vexo, "Wearable obstacle detection system for visually impaired people," VR workshop on haptic and tactile perception of deformable objects, Hannover, Germany, 2005.*