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SMART STICK FOR BLIND PERSON

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ABSTRACT: This project describes ultrasonic blind walking stick with the use of Arduino. according to who, 30 million peoples are permanently blind and 285 billion peoples with vision impairment . if you notice them, you 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 life 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.

KEYWORDS: Automatically Operating , Ultrasonic sensor , Infrared sensor based , PIR sensorbased , Smart Stick for Blind Person

I. INTRODUCTION

Visually impaired persons have difficulty to interact and feel their environment. they have little contact with surroundings. physical movement is a challenge for visually impaired persons, because it can become tricky to distinguish obstacles appearing in front of them, and they are not able to move from one place to another. they depend on their families for mobility and financial support. their mobility opposes them from interacting with people and social activities. in the past, different systems are designed with limitations without a solid understanding of the nonvisual perception. researchers have spent the decades to develop an intelligent and smart stick to assist and alert visually impaired persons from obstacles and give information about their location. over the last decades, research has been conducted for new devices to design a good and reliable system for visually impaired persons to detect obstacles and warn them at danger places. smart walking stick is specially designed to detect obstacles which may help the blind to navigate care-free. the audio messages will keep the user alert and considerably reduce accidents. a voice enabled automatic switching is also incorporated to help them in private space as well. this system presents a concept to provide a smart electronic aid for blind people, both in public and private space the proposed system contains the ultrasonic sensor, water sensor, voice play back board, raspberry pi and speaker. the proposed system detectsthe obstacle images which are present in outdoor and indoor with the help of a camera. the stick measures the distance between the objects and smart walking stick by using an ultrasonic sensor. when any objects or obstacles come in range of an ultrasonic sensor and it make buzzer sound

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II. RELATED WORK

A. BasicBlockDiagram:

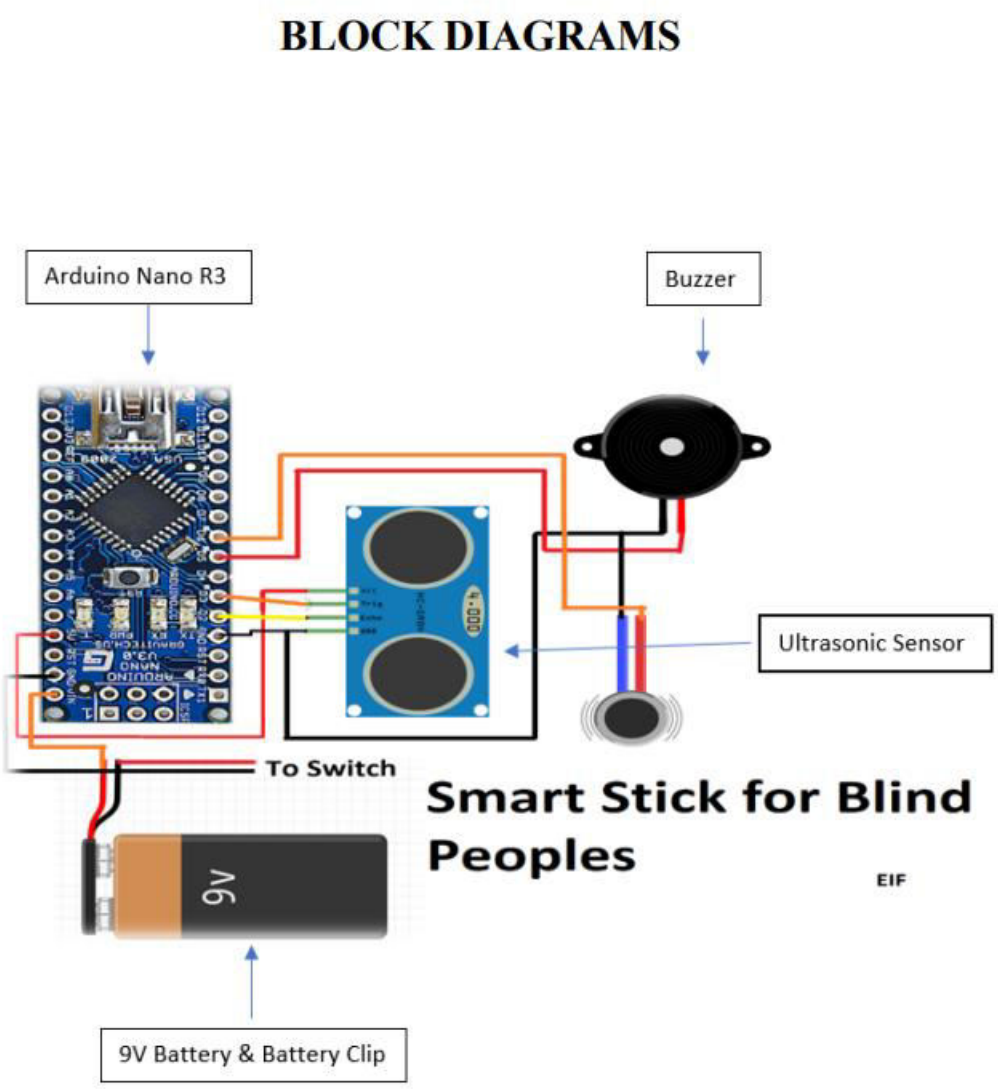

Figure. Implementation

B. Mainlythisblockdiagramconsistsofthefollowingessentialblocks.

- Microcontroller Atmel ATmega168 or ATmega328
- Operating Voltage (logic level) 5 V
- Input Voltage (recommended) 7-12 V
- Input Voltage (limits) 6-20 V
- Digital I/O Pins 14 (of which 6 provide PWM output)
- Analog Input Pins 8
- DC Current per I/O Pin 40 mA
- Flash Memory 16 KB (ATmega168) or 32 KB (ATmega328) of which 2 KB used by bootloader
- SRAM 1 KB (ATmega168) or 2 KB (ATmega328)
- EEPROM 512 bytes (ATmega168) or 1 KB (ATmega328)

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- Clock Speed 16 MHz
- Dimensions 0.73" x 1.70

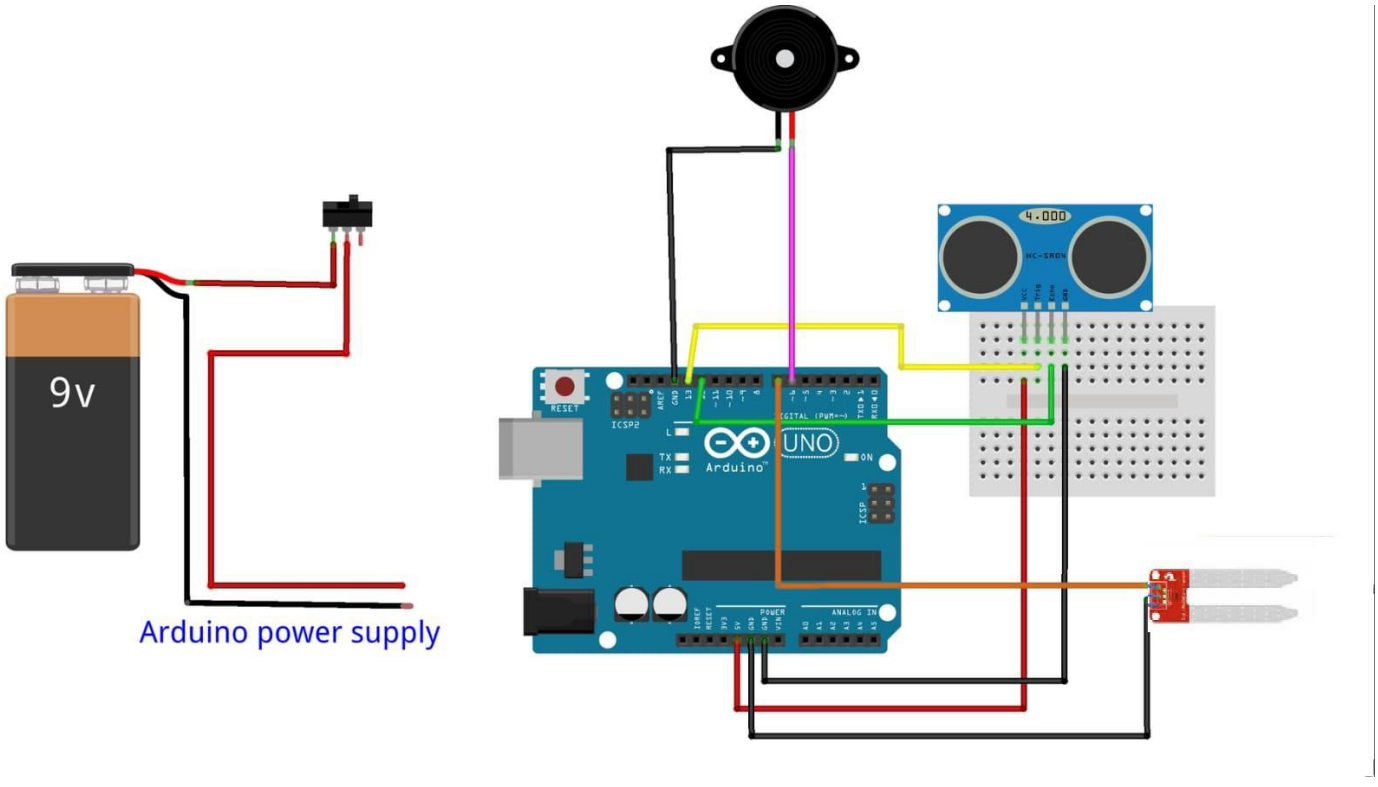
III. PROPOSED ALGORITHM

C. DesignConsiderations:

- Start the Process Ultrasonic wave semitting from Ultrasonic transmitter
- UltrasonicwavesreceivedfromUltrasonicreceiver
- Travellingtimecounted bysensor
- IfTravellingtimeisinbetweenaveragevalue,commandsendingtoARDUINO
- Continuetheprocess,whenevertheinterruptionoccurs.

IV. PROPOSED ALGORITHM

D. CIRCUITDIAGRAM:



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V. OUTPUT RESULTS

AFTER CONNECTION TO THE PIPE .HENCE IT IS A SMART BLIND STICK USING AURDINO

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