Smart Device for Disabled Person

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***Abstract*— This project focuses on the Electronic Blind Mobility Aid that helps Blind people travel by themselves using sensors mounted on a walking stick. The detector circuitry consists of a set of IR (Infrared) sensor (Transmitter & Detector) and ultrasonic sensor. Once any of the sensors recognizes any obstacle or pit, the microcontroller signals and in turn announces using the voice module which is interfaced to the microcontroller. The APR33A3 is an eight channel voice record cum playback chip in which eight different messages can be recorded. But as only three messages are to be played, three channels are only used here in this project.**

Index Terms: **Arduino UNO, Microcontroller, Ultrasonic Sensor, GSM Module, Voice Chip, IR sensor etc.**

I.INTRODUCTION

Numerous individuals with visual obliteration travel autonomously utilizing a wide scope of instruments and strategies. Dazzle individuals are confronted with numerous issues like autonomous and effortless travel. A long stick is utilized to broaden the client's scope of touch sensation. It is typically swung in a low clearing movement, across the proposed way of movement to identify hindrances. Nonetheless, utilizing strolling stick may not take care of the issue and it is notable that outwardly debilitated individuals utilize their hearing sense to make up for their decreased visual perception. For example, they can perceive sound sources. This undertaking centers around the Electronic Visually impaired Portability Help that assists Daze with peopling travel without anyone else utilizing ultrasonic sensors mounted on a mobile stick. Daze individuals risk slamming into an obstruction just when they are in development moderately to their current circumstance. This aides in finding the static article in their way, accordingly assisting the visually impaired client with voyaging themselves. This undertaking can't identify draping objects as the sensors are mounted on the strolling stick which can recognize objects at ground level. Client can be cautioned of close impediments in range while going in their current circumstance. The framework we propose, distinguishes the closest hindrance by means of a ultrasonic sensor framework and copper cathodes for wet floor detecting. This framework targets expanding the versatility of outwardly impeded individuals by offering new detecting capacities.

II. LITERATURE SURVEY

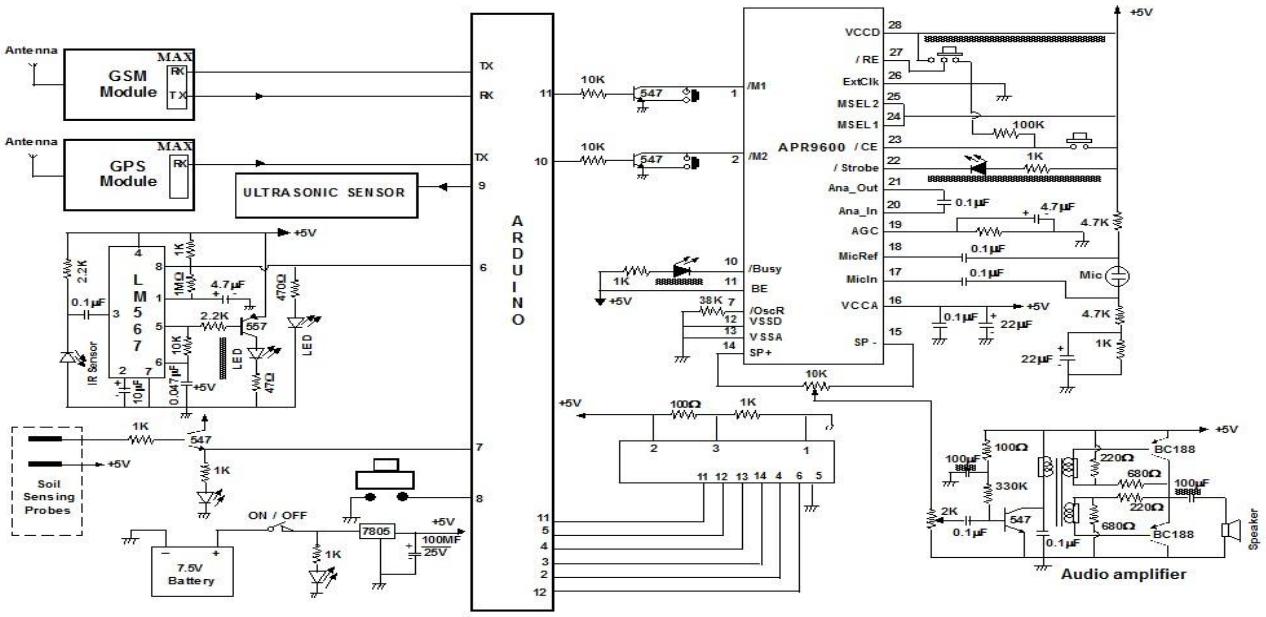
(2011) created a smart stick for drowsiness that uses an infrared (IR) sensor to provide early warning of a deterrent. The stick warns the outwardly impaired folks with vibration signals after recognising the obstructions. In any event, the cunning stick is only useful for deterrent recognition, not for the emergency needs of the vision handicapped. Furthermore, the IR sensors are ineffective because they can only detect the closest obstacle in a short distance.(2012) presented the Blindspot, a smart white stick that combines GPS technology, person-to-person communication, and ultrasonic sensors to let outwardly handicapped people explore public settings. The GPS pinpoints the location of the impediment and warns the uninitiated to avoid colliding with it using supersonic sensors. However, because supersonic informs the distance of the impediment, GPS did not display the productivity in tracking the region of the deterrents.

Benjamin metal (2011) has developed a clever stick that used laser sensors to detect snags and down controls. A high-pitched "Blare" was used to notify the finding of the obstruction. The laser stick's design is clear and intuitive. The stick can only detect impediment and cannot provide intellectual or mental assistance. There is only a signal sound that activates

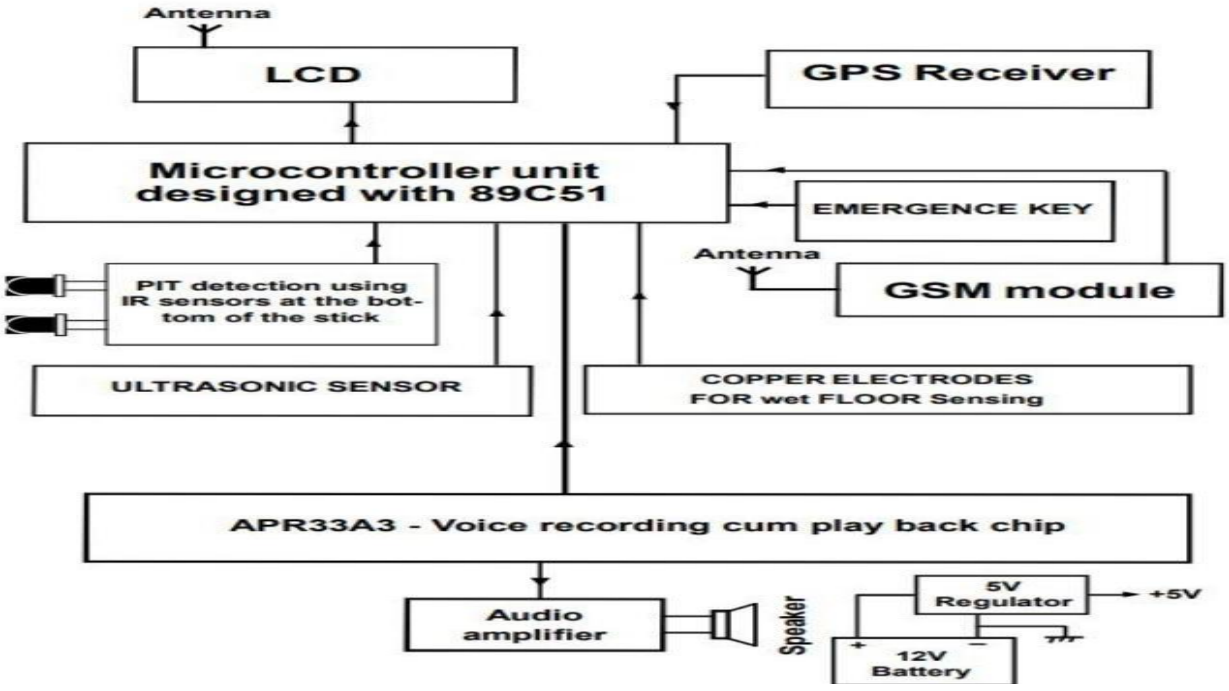
each obstacle, and there is no assistance to lead them. Focused Michigan University (2009) developed an electronic stick for dazed people that would provide relevant data about the weather in the client's environment. They used RFID chips installed in road signs, customer front facades, and comparable areas, and the stick reads them and sends the information back to the client. In addition, the device has The Smart Cane, which has an ultrasonic sensor placed on it, is worn across the shoulder with a courier-style pouch. When a stumbling block is detected, a speaker on the pack tie sounds an alarm and also directs the client in different directions.

III. METHODOLOGY

CIRCUIT DIAGRAM



BLOCK DIAGRAM:



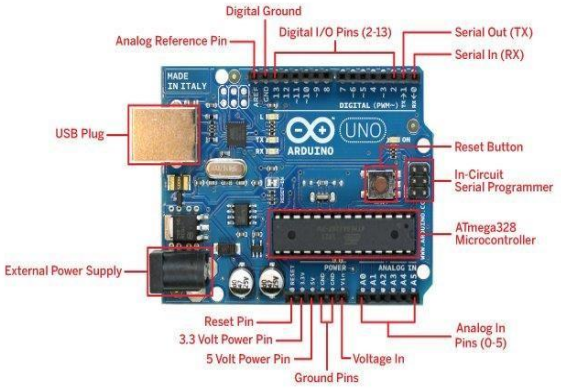
This segment manages the hypothesis of a portion of the parts utilized just as the plan and execution of a canny strolling stick for the visually impaired. The ultrasonic sensor transmitter creates flags and communicates them a specific way which will then, at that point be reflected back when they are moving toward any obstacle(s), then, at that point the ultrasonic sensor recipient gets it and sends it to the microcontroller which will trigger/switch ON the Signal.

Proposed Framework Our proposed framework is comprised of the Ultrasonic sensor was interfaced to the sensor was associated with the microcontroller.

The Arduino UNO is a microcontroller depends on the ATmega328p. It has 14 computerized yields and instruction sources pins of which 6 can be utilized as PMW yields, 6 similarity inputs, a 16MHz quartz gem, a USB association, a force jack, an ICSP reset button. The Dampness sensor comprises of two wire tests which dependon the particular obstruction of water to detect its quality when there is a contact. The RF transmitter was interfaced with the microcontroller as codes were composed with Arduino sketch and the RF collector was associated with the microcontroller. The LCD was interfaced with the microcontroller associated with pin and all codes composed with the Arduino sketch.

Arduino Uno Board

Arduino/Genuino Uno is a microcontroller board based on the ATmega328P (datasheet). It has 14 digital input/output pins (of which 6 can be used as PWM outputs), 6 analog inputs, a 16 MHz quartz crystal, a USB connection, a power jack, an ICSP header and a reset button. It contains very thing needed to support microcontroller; simply connect it to a computer with a USB cable or power it with a AC-to-DC adapter or battery to get started. You can tinker with your UNO without worrying too much about doing something wrong, worst case scenario you can replace the chip for a few dollars and start over again."Uno" means one in Italian and was chosen to mark the release of Arduino Software (IDE) 1.0. The Uno board and version 1.0 of Arduino Software (IDE) were the reference versions of Arduino, now evolved to newer releases. The Uno board is the first in a series of USB Arduino boards, and the reference model for the Arduino platform; for an extensive list of current, past or outdated boards see the Arduino index of boards.



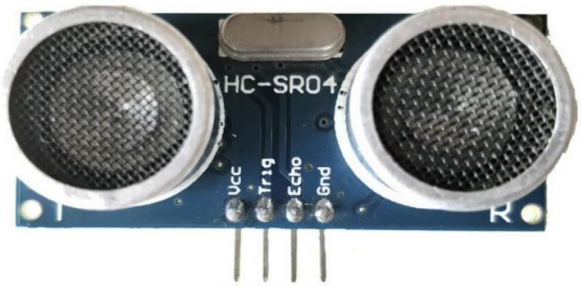
ATMEGA 328P FEATURES

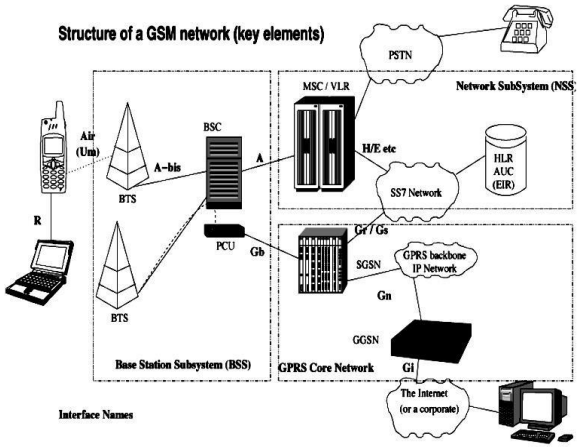
Microcontroller	ATmega328P
Operating Voltage	5V
Input Voltage (recommended)	7-12V
Input Voltage (limit)	6-20V
Digital I/O Pins	14 (of which 6 provide PWM output)
PWM Digital I/O Pins	6
Analog Input Pins	6
DC Current per I/O Pin	20 mA
DC Current for 3.3V Pin	50 mA
Flash Memory	32 KB (ATmega328P) of which 0.5 KB used by bootloader
SRAM	2 KB (ATmega328P)
EEPROM	1 KB (ATmega328P)
Clock Speed	16 MHz
Length	68.6 mm
Width	53.4 mm
Weight	25 g

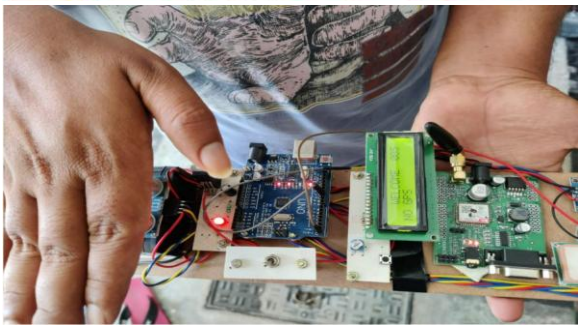
ULTRASONIC SENSOR

Ultrasonic Application Technology is the thing which developed in recent decades. With the ultrasonic advance, and the electronic technology development, especially as high-power semiconductor device technology matures, the application of ultra-sonic has become increasingly widespread:

- Ultrasonic measure the distance, depth and thickness;
- Testing ultrasonic
- Imaging the ultrasonic sound
- machining, such as polishing, drilling in ultrasonic sensor
- cleaning of ultrsonic







Applications of GSM Modem

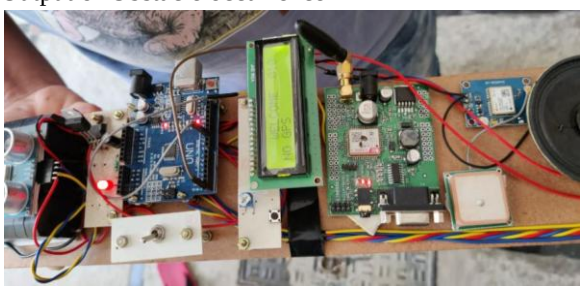
GSM is world's most celebrated Versatile stage. Cell phones with SIM cards use

GSM innovation to assist you with conveyingyour family, companions and business partners. GSM frameworks enjoy following upper hands over fundamental landline communication frameworks:

IV.CONCLUSION &RESULT

The project work "SMART WEARABLE FOR PHYSICALLY DISABLED PERSON" was successfully conceived and developed, and a prototype module was built for demonstration purposes, with satisfying results.

Output of Obstacle occurrence



ADVANTAGES

- Using an ultrasonic sensor, it can detect any impediment.
- Using the GPS technology, it can pinpoint the exact location of an obstacle.
- Used to locate water on the road or on their route, as well as to detect pits when walking

DISADVANTAGES

- They are unable to identify hidden obstacles that are extremely dangerous to the blind, such as descending steps, holes, and so on.

APPLICATIONS

- Assists blind people in finding their way to their destination. Assists physically challenged people in avoiding collisions, trenches under their car, and other hazards while travelling to their destination.
- Simple to assist in the discovery of roadside water and pits.
- By voice command, warns blind or physically disabled persons about water,
- holes, and obstacles; plus, it's simple to identify the missing person, such as a
- blind or physically disabled person.

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