

“GPS Tracking Blind Stick Using Controller”

Dipali Gajare*¹, Sarikha Gajare*², Ujjawala Salunkhe*³, Ghodake Yogesh*

**¹²³ Student, Electronics and Telecommunication, solapur University,*

**Assistant Professor, Electronics and Telecommunication, solapur University,*

Abstract

In our society there are lot of people those who are blind. They have no any support to wonder independently in the society. To avoid this problem we will going to made “GPS Tracking Blind Stick Using Controller” with the help of various sensors like Moisture sensor, Ultrasonic sensor also we use the GPS for tracking the position of blind people.

Keyword: *GPS, GSM, Ultrasonic sensor, Moisture sensor, PIC16f877A, RF Transmitter/Receiver, Keypad, Buzzer, LED.*

1.Introduction:

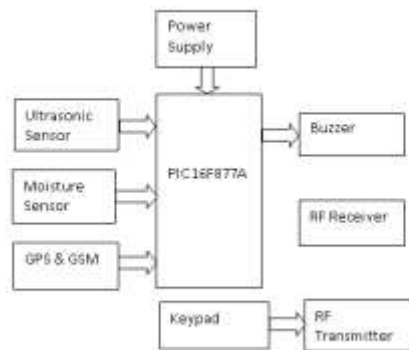
Now a days there are many people who are blind they have no any source to wonder independently in the society. So to reduce this disadvantage we design the “GPS Tracking Bind Stick Using Controller”. In this project we are using various sensors like electromagnetic sensor, moisture sensor, ultrasonic sensor as well as Rf transmitter & receiver to find the stick, if the stick is missing in small area. The ultrasonic sensor is used to detect the object come before the stick and also measure the distance from object to blind person. The moisture sensor is used to sense the water content from the soil. The electromagnetic sensor is used to sense the electromagnetic waves. If any cable or wire comes before the blind person that time electromagnetic sensor sence the waves from this cable and alert the person from major accident. The GPS is used to track the position of blind person which carry the blind stick, if the person missing in any big mob.

2.GPS Module:

The GPS is used to track the position of blind person if the person missing in mob. GPS is used for gives the value of latitude & longitude. If the direction of blind person changes then the distance of latitude and longitude also changes.



3.Block diagram:



In this project various sensors are used for the operation of blind stick. In this project 3 sensors are used that are ultrasonic sensor, moisture sensor & electromagnetic sensor. The output of these sensors are given to the PIC microcontroller. This microcontroller has on-chip ADC so there is no need to connect the external ADC. First these sensors sense the various parameter and are given input to the microcontroller. Then the output of microcontroller is given to the buzzer. If the sensors output goes high then buzzer produce the sound. In this project we use a wireless remote to find the stick if it is missed anywhere then we can find it by using wireless remote easily. When we press the button then RF Transmitter generates frequency (433MHz) these frequencies are received by RF Receiver and the buzzer produce sound which is present on stick.

Circuit Diagram:

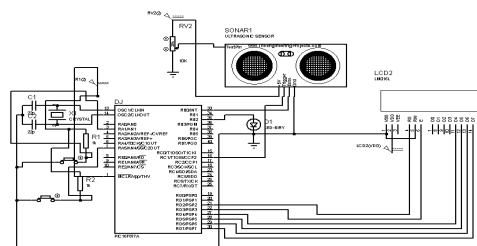


Fig. Circuit Diagram of GPS Tracking Blind Stick Using Controller

Ultrasonic Sensor:



The ultrasonic sensor is used to detect the obstacle. It has four pins namely VCC, Trigger, Echo and GND. The ultrasonic sensor has two parts Transmitter and Receiver. The ultrasonic transmitter transmits an ultrasonic wave,

this wave are bounced on object & reflected back towards the sensor. This reflected wave is received by ultrasonic receiver. To calculate the distance we can use this sensor. For that use following formula

$$\text{Distance} = \text{Speed} * \text{Time}$$

Moisture sensor:



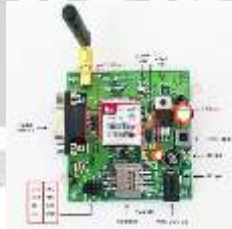
The Moisture sensor is used to sense the water content present in the soil. When the soil contains water content then the moisture output is high. The sensor includes a potentiometer to set the desired moisture threshold level. When the sensor measures more than the set threshold level then digital output goes high & when the moisture in the soil is less than the threshold level then the digital output goes low. This digital output can be given to the microcontroller to sense the moisture level.

RF Transmitter & Receiver Module:



The RF module is used for wireless remote purpose. The rf module consisting of two parts namely transmitter and receiver. When logic 0 is applied to transmitter then there is no power supply in transmitter, when logic 1 is applied to transmitter then transmitter is on and there is high power supply in the range of 4.5mA with 3v. The RF transmitter and receiver module operates on specific frequency 433MHz.

GSM:



GSM module needs 12V, 2A supply for its proper functioning. It can be used for SMS, voice, data, fax with low power consumption. It delivers GSM/GPRS 900/1800MHz Performance. PIC microcontroller sends actual load value to authority by using GSM. In this system GSM is used to monitor the load current values. Modem Specifications. The SIM900 is a complete Tri-band GSM solution in a compact plug-in module. Featuring an industry standard interface, the SIM900 delivers GSM/GPRS 900/1800/1900Mhz performance for voice, SMS, data and Fax in a small form factor and with low power consumption.

LCD (16*2):



An LCD is an electronic display module which uses liquid crystal to produce a visible image. The 16*2 LCD is very basic module commonly used in circuit. The 16*2 translates 16 characters per line in 2 such lines. In this LCD each character is displayed in a 5*7 pixels matrix. The LCD is used for display the distance between ultrasonic sensor and object present before the blind person.

Buzzer:



The buzzer is an electronic device which is used for alert purpose. Normally buzzer is operate on 5v. In our project the buzzer is used for 3 purposes. If ultrasonic sensor detects the object buzzer produce the single time, if moisture sensor sense the water content present in the soil buzzer produce the sound double, if electromagnetic sensor sense the electromagnetic waves then buzzer produce the sound triple.

4.Conclusion:

The Proposed system design for the person who is blind person this technique is done by using modern stick with ultrasonic sensor this technique improves stick smarter and more helpful for blind person. The blind person travels with the help of stick, based on the limitations of old stick this system and paper is proposed. All the studies which were saw, there are a number of techniques for making a ultrasonic blind stick for blind people.

5.Future Scope:

By using of active RFID tags will transmit the location information automatically to the PCB unit, when the stick is in its range. The RFID sensor doesn't have to read it explicitly.

6.References:

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