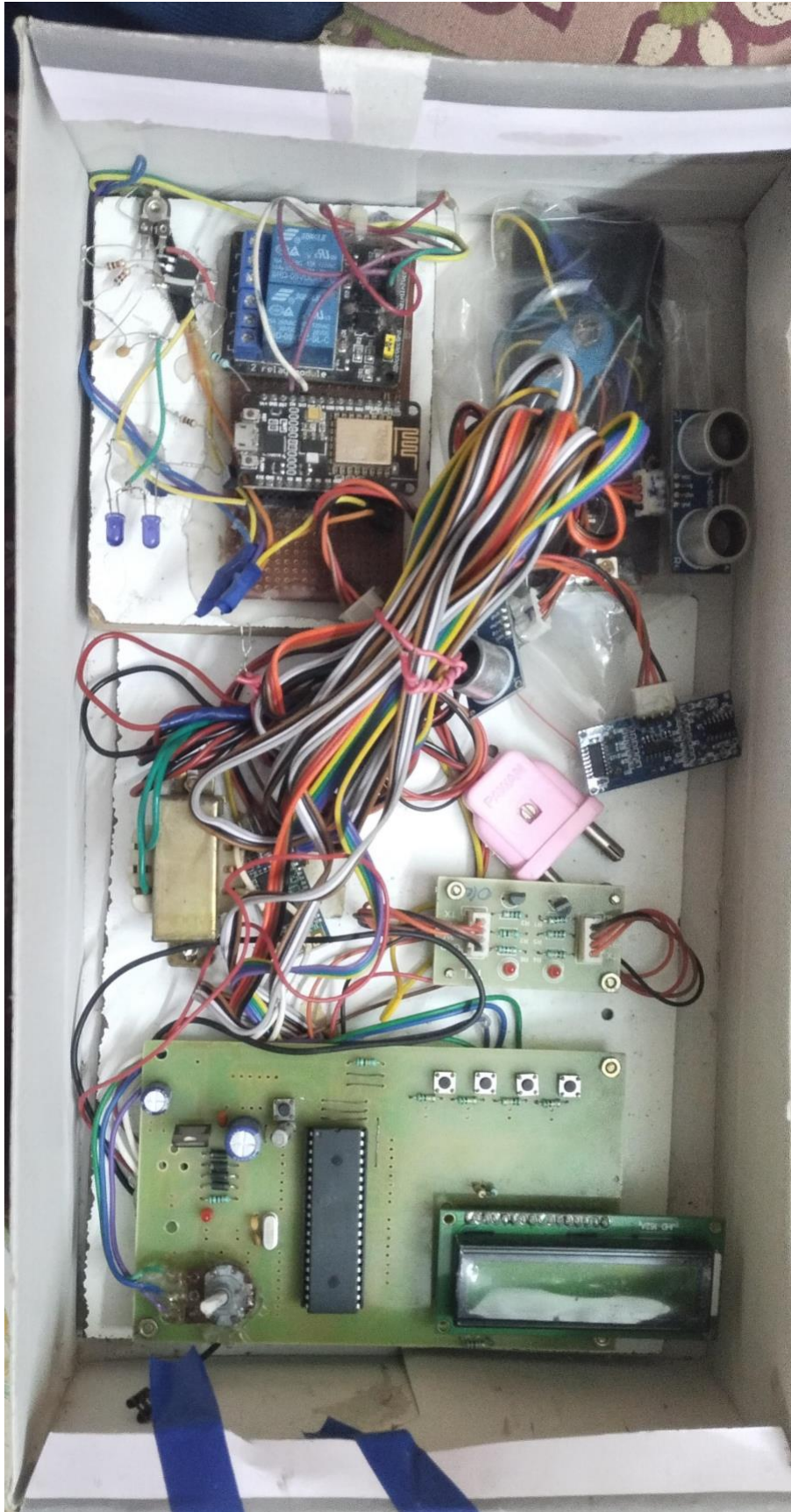


ABSTRACT

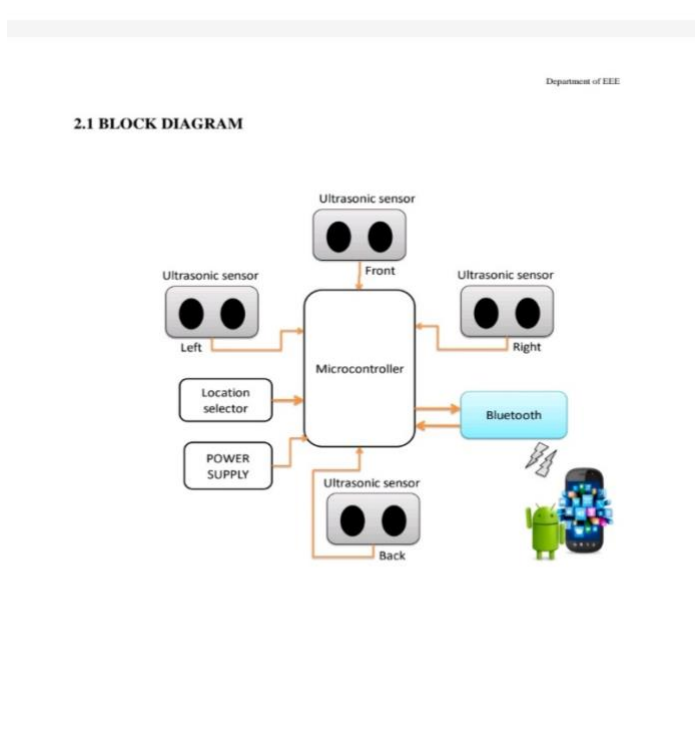
According to a recent report of the World Health Organization 81.7% of all 39 million blind people worldwide are 50 years and older. These people have an inherent risk towards walking disabilities. In present days, the navigation system to help for blind peoples our daily life. The proposed systems were based on ultrasonic sensor to detect the obstacles and alert the blind person. This information is useful for the blind to navigate themselves. For example, the user can program locations like Home, Office, Bus stop etc on database on the user device. The database is programmed with the location co-ordinates of these places. The location co ordinate of the blind path gives the information about the current location. The user is provided with a customized embedded systems based device, which has a keypad. The user can select the location they want to go to using the keypad. This information is provided as a voice using android application. Thus the user can independently navigate them using just voice commands and listening to the directions provided by device.

INTRODUCTION

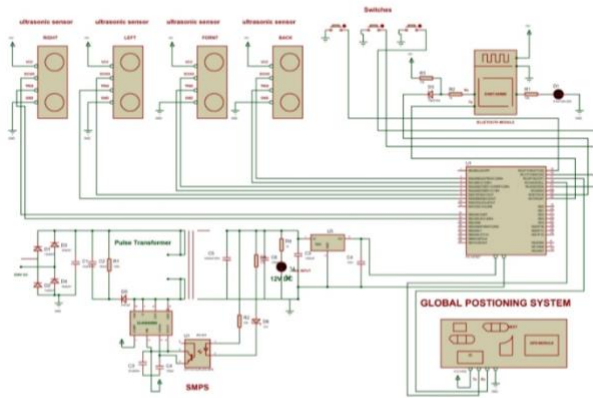
Blindness is the condition of lacking visual observation due to neurological and physiological factors. For blind pedestrian secure mobility is one of the biggest challenges faced in their daily life. According to the World Health Organization (WHO) in 2012, out of 7 billion global population there were over 285 million visually impaired people and 39 million were totally blind out of which 19 million are children (below 15 years) and this number is growing at an alarming rate. So, some navigation system is required to assist or guide this people. Many researches are being conducted to build navigation system for blind people. Most of these technologies have boundaries as its challenge involves accuracy, interoperability, usability, coverage which is not easy to overcome with current technology for both indoor and outdoor navigation. The proposed system mainly focuses on two components; sensing of the immediate surrounding environment against obstacle for the visually impaired person and warning about the obstacle by means of voice feedback system.



BLOCK DIAGRAM



CIRCUIT DIAGRAM



SOURCE CODE

```
#include <16F887.h>
#define SEL_key portb_7
#define busstop portb_6
#define office portb_5
#define home portb_4
unsigned char user_loc[15],urt_rcv=0,rcv_cnt=0;
unsigned long lcd_dis_count = 0;
unsigned long adc_val2;
unsigned long adc_map2;
unsigned long sensor_scan = 0;
unsigned long cur_loc=0;
//unsigned char home[2] ="h";
//unsigned char office[2] ="o";
//unsigned char bus_stop[2] ="b";
unsigned long needed_loc = 0;
int8 ob_flag=0,Page_flip=0,Loc_flag=0;
short F_flag=0,B_flag=0,L_flag=0,R_flag=0;
unsigned long Set_obstacle_F=0,Set_obstacle_B=0,Set_obstacle_R=0,Set_obstacle_L=0;
```

```
Short R_place_Flag = 1;
short s_flag=0;
void adc2_scan()
{
    unsigned long ran1,ran_count1=0;
    ran1=0;
    for(ran_count1=0;ran_count1<=9;ran_count1++)
    {
        ran1 +=(unsigned long)read_adc(); /* 0.1035;
        delay_us(30);
    }
    adc_val2 = (ran1/10) ;
    if ((adc_val2 > 400) && (adc_val2 < 500))
    {
        cur_loc =1;
    }
    else if ((adc_val2 > 650) && (adc_val2 < 800))
    {
        cur_loc =3;
    }
    else if (adc_val2 > 800)
    {
        cur_loc =2;
    }
}
```

```

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```

COMPONENT

PIC MIC – 16F887

IC

TTL

4 X ULTRA SONIC SENSOR

TRANSFORMER

POTENTIO METER

BLUETOOTH

POWER SOURCE

LCD PANEL

PANEL BOARD

CONNECTING WIRES