1. INTRODUCTION

1.1 INTERNET OF THINGS

The Internet of things (IoT) is the network of physical devices, vehicles, home appliances and other terms embedded with electronics, software, sensors, actuators, and connectivity which enables these objects to connect and exchange data. Each thing is uniquely identifiable through its embedded computing system but is able to inter-operate within the existing Internet infrastructure. The IoT allows objects to be sensed or controlled remotely across existing network infrastructure, creating opportunities for more direct integration of the physical world into computer-based systems, and resulting in improved efficiency, accuracy and economic benefit in addition to reduced human intervention. When IoT is augmented with sensors and actuators, the technology becomes an instance of the more general class of cyber-physical systems, which also encompasses technologies such as smart grids, virtual power plants, smart homes, intelligent transportation and smart cities.

1.2 STATISTICS

Approximately 203,900 children were abducted in 1999 in “family abductions” in which a family member was trying to deprive a caretaker of custodial rights. 98% of these children were located or returned home. None of these children were killed. There were approximately 58,200 (28.5%) “non-family abductions” in 1999. Abductions in this category involved forcibly moving or detaining the child for a relatively short period of time, usually in connection with another crime.

1.3 OBJECTIVES

As children grew up it is hard for parents to look after their safety. Children can face any type of dangerous situations both inside and outside the home. Parents who go to work will always be concerned on their kid’s safety. Similarly, they have the same fear when the kid leave home for school or playing or for anything else. One of the solution for this problem is to monitor the kid 24/7 by using some sensors working together.

The system focuses on monitoring children by wearable sensors attached either to the kid or to their belongings. Vibration sensor and heartbeat sensor are used in addition to GPS (to track their location 24/7) add-ons with Push Button to check whether the child is wearing the device or not. A keypad is attached to the system to enrol a contact number to which messages are to be sent in the time of emergency. The working of this system is ensured by ON state of the PUSH Button i.e., the kid wears the device, the push button goes to ON state and vice versa. Heartbeat sensor measures the heartbeat of the kid continuously. Vibration sensor senses the vibration if it exceeds the threshold level. GPS keeps track of the kid's current location. The above information is updated in the cloud server regularly, so that the parents can check their kid's status whenever they want by signing into their cloud account. In case of any emergency situation the device notifies parent about the state of their kid through an SMS. An android application is also provided, which fetches the details from the encrypted message received such as heartbeat value, vibration, status of push button, and location. The application also redirects us to Map to show the kid's current location. The system sends messages to parents if the observed vibration level is too high, or if push button goes OFF.

2. LITERATURE SURVEY

2.1 CHILD MONITORING SYSTEM USING MA WITH RASPBERRY PI

A Prototype of Child Monitoring System Using Motion and Authentication with Raspberry Pi, developed by Okky Permatasari, Siti Ummi Masruroh and Arini in the year 2016, deceipts how child is monitored using motion and authentication with Raspberry Pi. Moreover, this prototype can help parents to monitor children which can be accessed easily by online through the website with authentication feature. The drawback of the system is that is does not provide information regarding the child's current location. This system is entirely on monitoring a place where children are available in huge numbers. The system cannot be used to monitor child all the time and when the child leaves the monitored area there still exists the problem.

They conducted interview to child psychologist and parent to support research data. In an interview with the child psychologist, concluded that parents need to monitor their children, because children nowadays are having many threats **[1]**. It could come from the internet and neighbourhood, sexual harassment, and lack of social skills. If there is a system or tool that can assist parents in monitoring child remotely, it capable of providing security and comfort the parents. While doing interview with parent, it concluded that parent needs to monitor children, but parents now need to come directly to the place where the child is to be able to do the monitoring. It becomes difficult for the parents themselves who have been busy with work and the workplace are often away with the child's location.

2.2 ABHAYA: AN ANDROID APP FOR THE SAFETY OF WOMEN

Abhaya, an Android Application for the Safety of Women and this app can be activated this app by a single click, whenever need arises. A single click on this app identifies the location of place through GPS and sends a message comprising this location URL to the registered contacts and also call on the first registered contact to help the one in dangerous situations. The unique feature of this application **[2]** is to send the message to the registered contacts continuously for every five minutes until the "stop" button in the application is clicked. Continuous location tracking information via SMS helps to find the location of the victim quickly and can be rescued safely.

2.3 EFFECTIVE WAYS TO USE IoT IN MEDICAL

The Internet of Things (IoT) is a new concept that allows users to connect various sensors and smart devices to collect real-time data from the environment. However, it has been observed that a comprehensive platform is still missing in the e-health and m-Health architectures to use smartphone sensors to sense and transmit important data related to a patient's health. In this paper, their contribution is twofold. Firstly, we critically evaluate the existing literature, which discusses the effective ways to deploy IoT **[3]** in the field of medical and smart health care. Secondly, we propose a new semantic model for patients' e-Health. The proposed model named as 'k-Healthcare' makes use of 4 layers; the sensor layer, the network layer, the Internet layer and the services layer. All layers cooperate with each other effectively and efficiently to provide a platform for accessing patients' health data using smart phones.

2.4 ASSESSING STABILITY AND PREDICTING POWER GENERATION OF EM VIBRATION ENERGY HARVESTERS

This paper presents the use of the power harvesting ratio (PHR) approach for evaluating the power harvesting capabilities of an electromagnetic vibration energy harvester. This was done for different electrical loads and measured bridge vibration data displaying multiple frequency components. Bridge vibration data was collected and characterized. The modes of the bridge were determined using a model sledge hammer, and the response of the bridge to a single vehicle was measured. Analysis of the data revealed that several of the modes contributed toward a response with multiple non-negligible frequency components. Measured bridge time-series data was then replayed on an experimental setup with an electromagnetic vibration energy harvester **[4]**. Six electrical loads were implemented on the experimental platform: four passive loads and two active loads. The PHR approach was used to predict the average power from each load. Experimentally measured average power was within 6% of the predicted average power. The PHR approach was also used to successfully predict harvester instability for the active load dictated by the maximum power transfer theorem, and validated experimentally. This paper demonstrates the utility of the PHR approach in evaluating harvester stability and performance for multi-frequency excitations and sophisticated electrical loads including active loads.

2.5 OVER SPEED MONITORING SYSTEM

In this paper, they present the design and implementation of a system, which provides a simple way to traffic authorities for monitoring of all the vehicles from the control room itself. This system calculates the speed and GPS coordinates continuously and these GPS coordinates help to find out the area in which the vehicle has been present, and the maximum speed allowed in the respective area. The speed and the coordinates of vehicle calculated are continuously stored in a memory card. If the speed of any vehicle exceeds the speed limit, the driver is alerted through a buzzer indicating the same **[5]**. If the driver still does not drive within the speed limit, an SMS, which contains the vehicle registration number, GPS coordinates at where he exceeded the speed limit, is sent to traffic authorities. Accordingly, an over speed ticket can be issued against the same vehicle.

3. SYSTEM SPECIFICATION

3.1 PIC 16F877A CONTROLLER

Microcontroller is a general purpose device, which integrates a number of the components of a microprocessor system on to single chip. It has inbuilt CPU, memory and peripherals to make it as a mini computer. A microcontroller combines on to the same microchip:

- The CPU core
- Memory (both ROM and RAM)
- Some parallel digital i/o

The microcontroller that has been used for this system is from PIC series. PIC microcontroller is the first RISC based microcontroller fabricated in CMOS (complimentary metal oxide semiconductor) that uses separate bus for instruction and data allowing simultaneous access of program and data memory.

Various microcontrollers offer different kinds of memories. EEPROM, EPROM, FLASH etc. are some of the memories of which FLASH is the most recently developed. Technology that is used in PIC16F877A **[7]** is flash technology, so that data is retained even when the power is switched off. Easy Programming and Erasing are other features of PIC16F877A.

3.1.1 SPECIAL FEATURES OF PIC MC

CORE FEATURES

- High-performance RISC CPU
- Only 35 single word instructions to learn
- All single cycle instructions except for program branches which are two cycle
- Operating speed: DC - 20 MHz clock input
- DC - 200 ns instruction cycle
- Up to 8K x 14 words of Flash Program Memory,
- Up to 368 x 8 bytes of Data Memory (RAM)
- Up to 256 x 8 bytes of EEPROM data memory
- Pin out compatible to the PIC16C73/74/76/77A
- Interrupt capability (up to 14 internal/external
- Eight level deep hardware stack
- Direct, indirect, and relative addressing modes

3.1.2 ARCHITECTURE OF PIC 16F877A

The complete architecture, pin diagram and the details about the specifications of PIC16F877A is shown in **figure 3.1**, **figure 3.2** and **Table 3.1** respectively

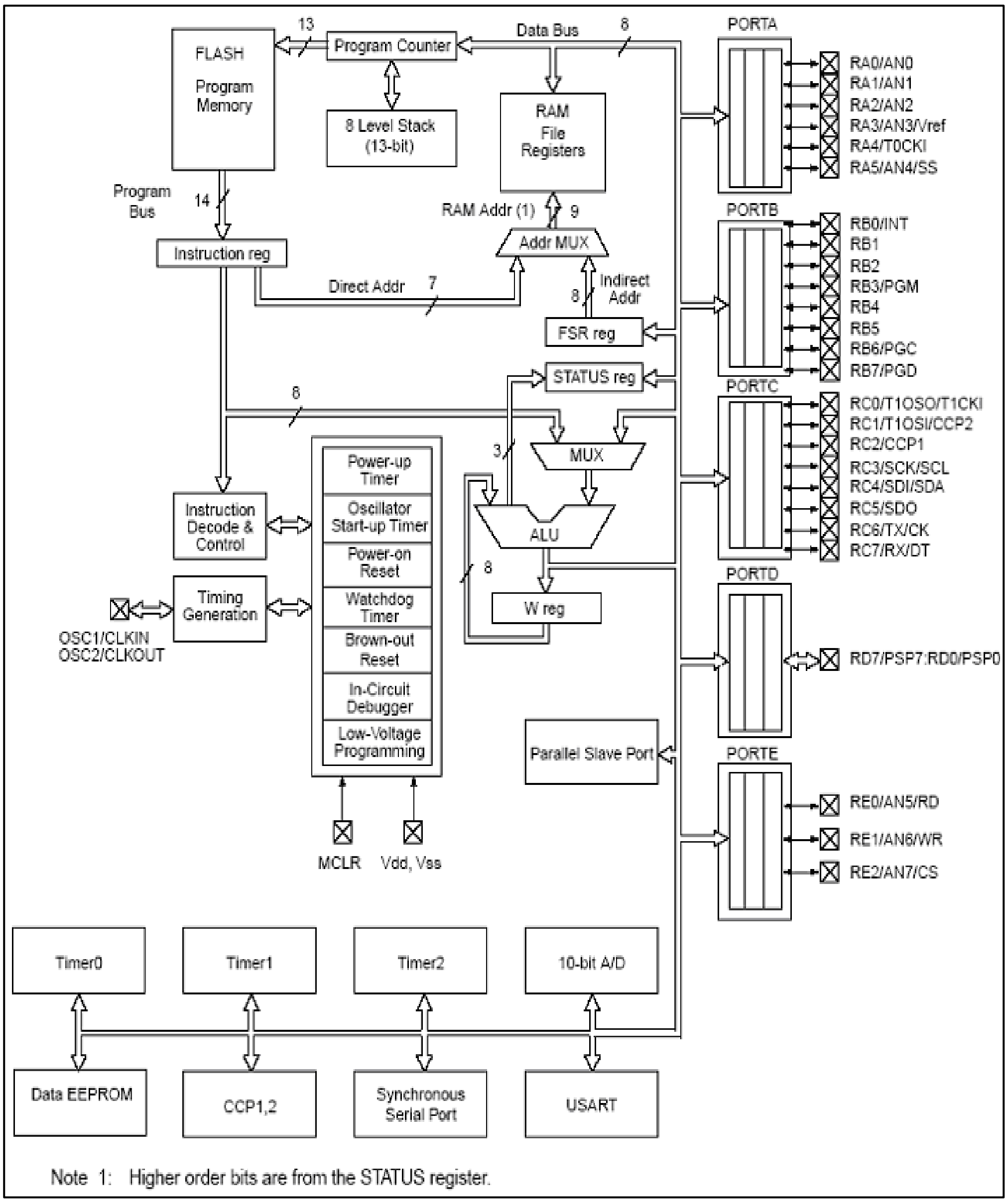


FIG 3.1 ARCHITECTURE OF PIC 16F877

DEVICE	PROGRAM FLASH	DATA MEMORY	DATA EEPROM
PIC 16F877A	8K	368 Bytes	256 Bytes

TABLE 3.1 PIC 16F877A SPECIFICATIONS

3.1.3 PIN DIAGRAM OF PIC 16F877A

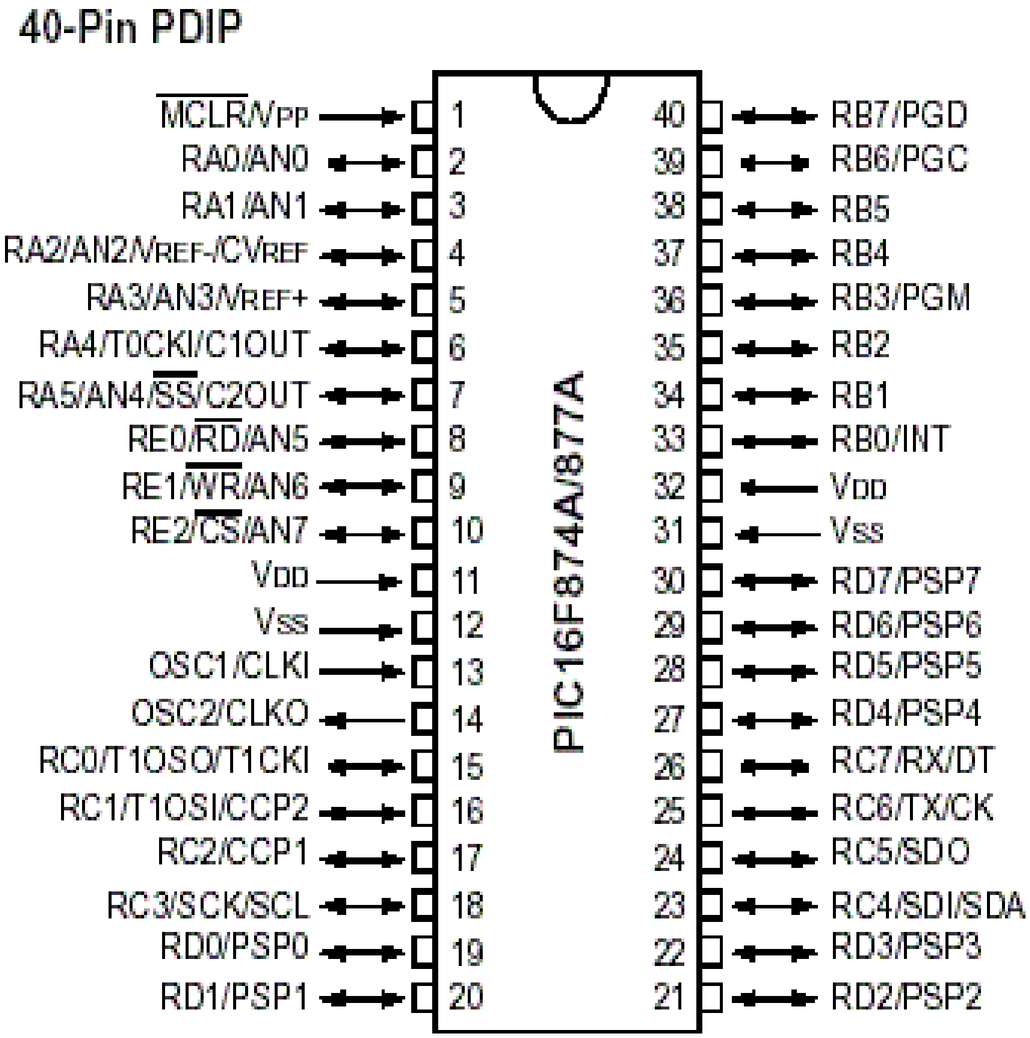


FIG 3.2 PIN DIAGRAM OF PIC 16F877A

3.2 VIBRATION SENSOR

Vibration circuit is used to sense the mechanical vibration. This circuit is constructed with

1. Piezo electric plate.
2. Operational amplifier

Piezo electric plate is the special type of sensor which is used to sense the mechanical vibration. Piezo electric plate converts the mechanical vibration to electrical signal. The converted electrical signal is in the range of small milli voltage signal.

Then the electrical signal voltage is given to amplifier unit through 0.1uf capacitor in order to filter the noise signal. The amplifier circuit is constructed with operational amplifier LM1458. The amplified output is in the form of AC signal the diode is used to rectify the negative signal.

The rectified signal is given to comparator. The comparator circuit is constructed with LM1458 operational amplifier in which the signal is given to inverting input terminal. The reference voltage is given to non-inverting input terminal. It converts the input signal to +12V to -12V square pulse.

3.2.1 APPLICATION

Piezoelectric sensors have proven to be versatile tools for the measurement of various processes. They are used for quality assurance, process control and process development in many different industries.

Piezo electric sensors are also seen in nature. Bones act as force sensors. Once loaded, bones produce charges proportional to the resulting internal torsion or displacement. Those charges stimulate and drive the buildup of new bone material. This leads to the strengthening of structures where the internal displacements are the greatest. With time, this causes weaker structures to increase their strength and stability as material is laid down proportional to the forces affecting the bone.

3.3 HEARTBEAT SENSOR

The Heart Beat Sensor provides a simple way to study the heart's function. This sensor monitors the flow of blood through ear lobe. As the heart forces blood through the blood vessels in the ear lobe, the amount of blood in the ear changes with time. The sensor shines a light lobe (small incandescent lamp) through the ear and measures the light that is transmitted. The clip can also be used on a fingertip or on the web of skin between the thumb and index finger. The signal is amplified, inverted and filtered, in the box. The GPS module provides current time, date, latitude, longitude, speed, altitude and travel direction / heading among other data, and can be used in a host of applications, including navigation, tracking systems, fleet management, mapping and robotics.

3.4 GSM

SIM 300 is a plug and play GSM Modem with a simple to interface serial interface. Use it to send SMS, make and receive calls, and do other GSM operations by controlling it through simple AT commands from micro controllers and computers. It uses the highly popular SIM300 module for all its operations. It comes with a standard RS232 interface which can be used to easily interface the modem to micro controllers and computers.

The modem consists of all the required external circuitry required to start experimenting with the SIM300 module like the power regulation, external antenna, SIM Holder, etc. as shown in **figure 3.3**.

3.4.1 FEATURES

- Uses the extremely popular SIM300 GSM module
- Provides the industry standard serial RS232 interface for easy connection to computers and other devices
- Provides serial TTL interface for easy and direct interface to microcontrollers
- Power, RING and Network LEDs for easy debugging
- On-board 3V Lithium Battery holder with appropriate circuitry for providing backup for the modules' internal RTC
- Can be used for GSM based Voice communications, Data/Fax, SMS, GPRS and TCP/IP stack
- Can be controlled through standard AT commands

- Module’s operation mode can be controlled through the PWR Switch connected to the PWR pin (refer the SIM300 datasheet for more information)

FIG 3.3 SIM300 GSM MODULE

3.5 GPS

This is a third generation POT (Patch Antenna On Top) GPS module. This POT GPS receiver providing a solution that high position and speed accuracy performances as well as high sensitivity and tracking capabilities in urban conditions & provides standard NMEA0183 strings in “raw” mode for any microcontroller. The module provides current time, date, latitude, longitude, speed, altitude and travel direction / heading among other data, and can be used in a host of applications, including navigation, tracking systems, fleet management, mapping and robotics.

This is a standalone GPS Module and requires no external components except power supply decoupling capacitors. It is built with internal RTC Back up battery. It can be directly connected to Microcontroller's USART. The module is having option for connecting external active antenna if necessary.

The GPS chipsets inside the module are designed by MediaTek Inc., which is the world's leading digital media solution provider and largest fab-less IC company in Taiwan. The module can support up to 51 channels. The GPS solution enables small form factor devices. They deliver major advancements in GPS performances, accuracy, integration, computing power and flexibility. They are designed to simplify the embedded system integration process.

3.5.1 SPECIFICATIONS

- Supply: 3.3V, 45mA
- Chipset: MTK MT3318
- Antenna: High gain GPS patch antenna from Cirocomm
- Data output: CMOS UART interface at 3.3V
- Protocol message support: GGA, GSA, RMC, VTG
- Position Accuracy: <3 m

3.6 LCD

It is a flat-panel display or other electronic visual display that uses the light-modulating properties of liquid crystals. Liquid crystals do not emit light directly. LCDs are available to display arbitrary images (as in a general-purpose computer display) or fixed images with low information content, which can be displayed or hidden, such as preset words, digits, and 7-segment displays as in a digital clock. They use the same basic technology, except that arbitrary images are made up of a large number of small pixels, while other displays have larger elements. LCDs are used in a wide range of applications including computer monitors, televisions, instrument panels, aircraft cockpit displays, and signage as shown in **figure 3.4**. They are common in consumer devices such as DVD players, gaming devices, clocks, watches, calculators, and telephones, and have replaced cathode ray tube (CRT) displays in nearly all applications.

FIG 3.4 LCD

3.7 POWER SUPPLY UNIT

BLOCK DIAGRAM

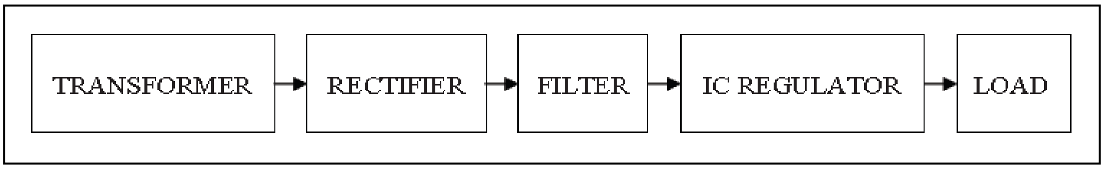


FIG 3.5 BLOCK DIAGRAM (POWER SUPPLY)

The ac voltage, typically 220V rms, is connected to a transformer, which steps that ac voltage down to the level of the desired dc output as shown in **figure 3.5**. A diode rectifier then provides a full-wave rectified voltage that is initially filtered by a simple capacitor filter to produce a dc voltage. This resulting dc voltage usually has some ripple or ac voltage variation. A regulator circuit removes the ripples and also remains the same dc value even if the input dc voltage varies. This voltage regulation is usually obtained using one of the popular voltage regulator IC units as shown in **figure 3.6**.

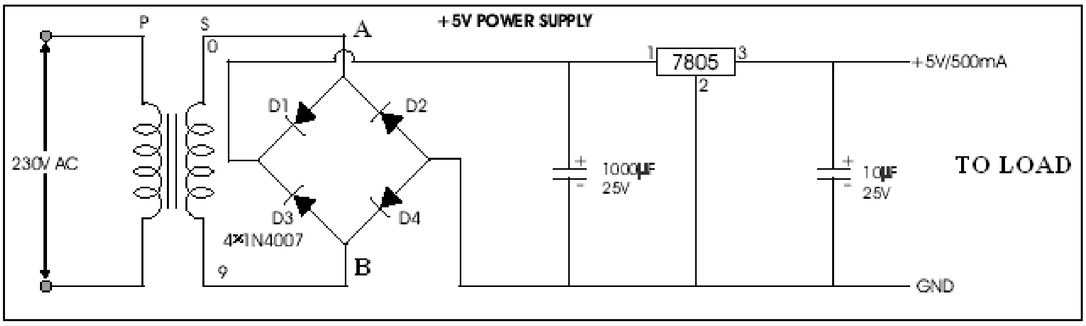


FIG 3.6 SCHEMATIC DIAGRAM (POWER SUPPLY)

4. DESIGN METHODOLOGY

4.1 PROBLEM DEFINITION

As children grew up it is hard for parents to look after their safety. Children can face any type of dangerous situations both inside and outside the home. Parents who go to work will always some fear about their kid's safety. Similarly, they have the same fear when the kid leaves home for school or playing or anything. The problem is to monitor the children 24/7 irrespective of place.

4.2 METHODOLOGY

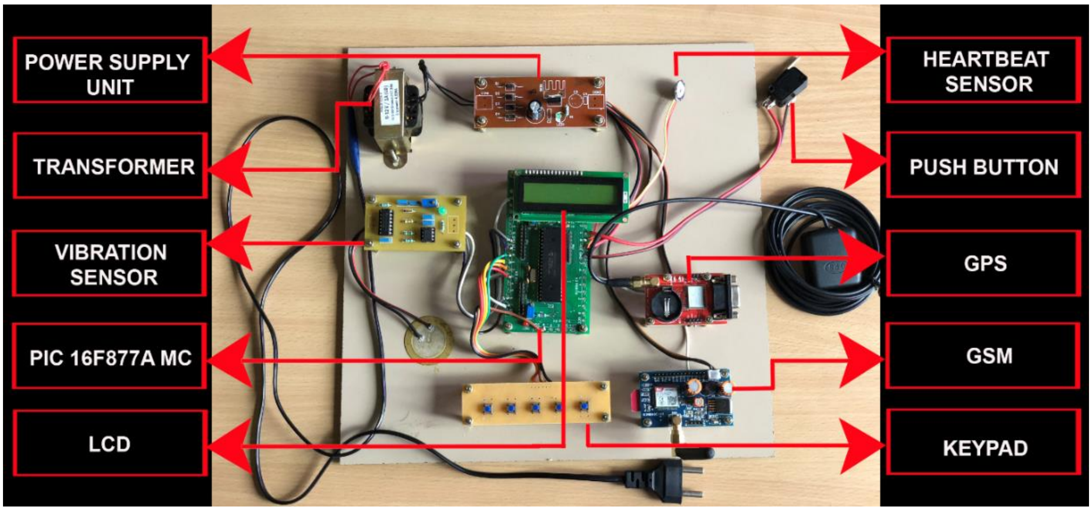


FIG 4.1 CIRCUIT DIAGRAM OF THE INVENTED SYSTEM

The above picture shows the working model of the system. First ever device in the system is Step-Down Transformer, which is used to step down the regular voltage to 0 to 12 Voltage for the system's supply. Then the modified current is given to the Power Supply Unit which is used to convert AC current to DC current. The power supply unit consists of bridge rectifier, capacitor and regulator. Bridge rectifier converts AC current to DC current, this converted DC current has some noises and ripples in it. Capacitor has two features, Filtering and Storing. Filtering removes the noises and ripples in the converted DC current and stored in the storage. Regulator is used to regulate a uniform current to the system. The system has two sensors, Vibration sensor and heartbeat sensor. The system also has GPS, Push button, GSM, Keypad, LCD and a PIC Microcontroller as shown in **figure 4.1**. The two sensors, GPS, Push button, GSM Keypad and LCD are connected to the Microcontroller, which has as code for everything dumped into it.

5. IMPLEMENTATION DETAILS

5.1 WORKING PRINCIPLE

The foremost idea of the prototype is to monitor children 24*7 with the help of Internet of Things (IOT) sensors. The initial connection contains a Step Down transformer and a Power Supply Unit (PSU) which supplies 5V current to all the devices in the system.

The PSU consists of Bridge Rectifiers, Capacitor and Regulator for this supply process. Then the system contains Vibration Sensor, Heartbeat Sensor, GPS, GSM, Push button, Keypad and LCD. The system also includes an Android Mobile Application and a Cloud Server.

The potential transformer will step down the power supply voltage (0-230V) to (0-15V and 0-9V) a level. If the secondary has less turns in the coil then the primary, the secondary coil's voltage will decrease and the current or AMPS will increase or decreased depend upon the wire gauge. This is called a STEP-DOWN transformer**.** Then the secondary of the potential transformer will be connected to the rectifier.

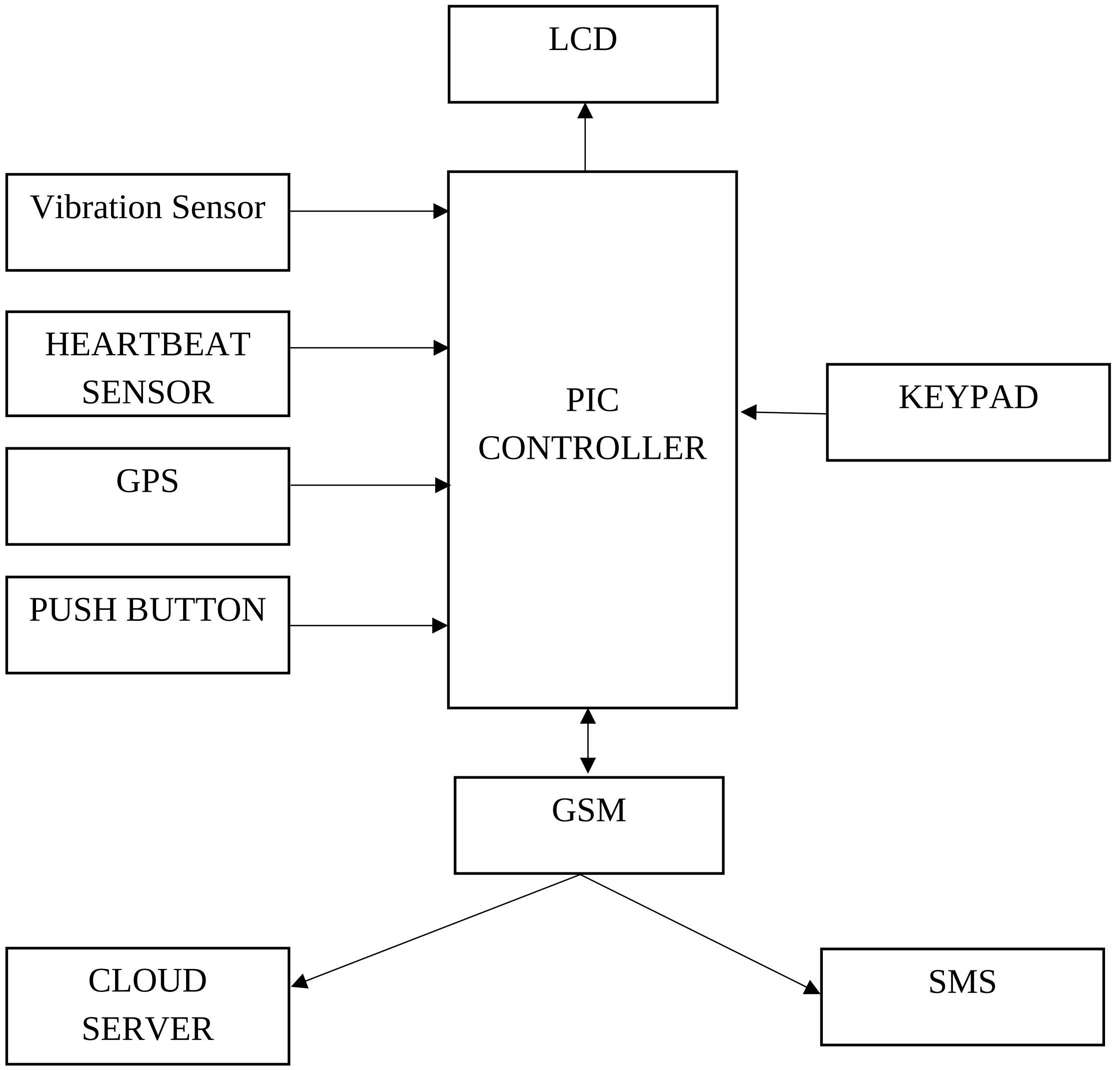


FIG 5.1 ARCHITECTURE OF THE INVENTED SYSTEM

The working of the system is by first the Push button is turned ON whenever the child wears it, then the Heartbeat Sensor starts measuring the pulse rate of the child continuously, the Vibration sensor detects vibration above a certain level (we set prior), GPS always keeps track of the child's location, the above information is updated regularly on the cloud Server **[6]**. And in any sort of emergency cases the above information from the sensors are passed to the parents through mobile application if they have internet facility and if they don't have internet facility these information will be passed to the Parent via SMS as shown in **figure 5.1**.

5.2 SAMPLE CODING

```
#include<pic.h>

#include"pic_lcd4.h"

#include"pic_adc.h"

#include"pic_serial.h"

#define set RC0

#define inc RC1

#define dec RC2

#define mov RC3

#define ent RE0

#define KEY RB1

void Mobile_Init();

void Msg_Send();

void Msg_send1();

void gps();

void keypad();

void receive();

void set_receive_time();

void send_data(unsigned int);

void send_msg();

void get_time();

void msg_send_start();

bit vv=0;

bit rr=0;
```

```
unsigned char a[80], m=0, d=0, read=0, rec, act=1, unit=1, gas_r=0, m, tem,
ab[30], mm, tem, mois;

unsigned char mon, dat, hh, min, act_time=0, sec2, dis=0, ldr, tt=0, aa=0;

unsigned char i1,b[15],h,sec,count,k,c,i,aa,bb,rx[10],k1,mode=0;

unsigned char m_sec,pulse,gg=0,sec1,mois,level,adc=0,glu,dial=0;

unsigned int amount=0,hb,hb1,time=190;

unsigned int vib=0,kk=0;;

void interrupt timer2(void)

{

        if(T0IF==1)

        {

                T0IF=0;

                m_sec++;

                if(m_sec>20)

                {

                        sec++;

                        sec2++

                        m_sec=0;

                }

                TMR0=0x3c;

        }

        if(RCIF==1)

        {

                RCIF=0;

                a[m] = RCREG;
```

```
        if(a[0] == '*'){m++;}
    }
    if(INTF == 1)
    {
        INTF = 0;
        pulse++;
    }
}
void main()
{
    int l_i=0;
    ADCON1 = 0x02;
    TRISA=0XFF;
    TRISB=0xFF;
    TRISC=0xCF;
    TRISD=0x00;
    TRISE =0b111;
    PORTC = 0xFF;
    Lcd4_Init();
    Delay(5000);
    PORTB = 0xFF;
    GIE=1;
    PEIE=1;
    TMR0=0x3c;
    T0IE=1;
```

```
OPTION=0x07;

TMR0IE=0;

TMR0IE=1;

INTE = 1;

INTEDG = 0;

Lcd4_Display(0xC0," CHILD SAFETY          ",16);

Lcd4_Display(0x80," SYSTEM                    ",16);

Delay(65000);Delay(65000);

Serial_Init(9600);

Receive(0);

Mobile_Init();

for(i=0;i<10;i++){b[i]=EEPROM_READ(i);Delay(500);Lcd4_Write(0xc4
+i,b[i]);}

Lcd4_Command(0x01);

Delay(65000);

Lcd4_Command(0x0C);

while(1)

{

        vib = Adc8_Cha(0);

        // Lcd4_Decimal3(0x82,vib);

        if(vib < 150){vv = 1; Lcd4_Display(0x80,"V:D",3); Delay(65000);
        Delay(65000);Delay(65000);}

        else{vv = 0;Lcd4_Display(0x80,"V:N",3);}

        Lcd4_Display(0xc0,"HB:",3);

        Lcd4_Decimal3(0x8c,sec);
```

```
Lcd4_Decimal3(0xcc,sec2);
Lcd4_Decimal3(0xc3,hb);
if(KEY){Lcd4_Display(0x87,"KY",2);kk=1;}
else{Lcd4_Display(0x87,"  ",2);kk=0;}
if(sec > 10)
{
        sec = 0;
        pulse = 0;
}
if(sec2 > 60 || vv == 1)
{
        Msg_Send();
        sec2 = 0;
}
else
{
        if(kk == 0)
        {
                if(sec2 > 10)
                {
                        Msg_Send();
                        sec2 = 0;
                }
        }
}
```

```
		if(!set){keypad();
	}
}
void keypad()
{
	unsigned char k=0,c=0;
	Lcd4_Display(0x80,"ENTER MOBILE NO:",16);
	Lcd4_Display(0xC0,"                ",16);
	Lcd4_Command(0x0e);
	Delay(65000);
	while(ent)
	{
		Lcd4_Command(0xc0+k);
		if(!inc){while(!inc)Delay(650);c++;if(c>9)c=0;b[k]=c+0x30;Lcd4_Write(0xc0+k,b[k]);}
		if(!dec){while(!dec)Delay(650);c--;if(c>9)c=9;b[k]=c+0x30;Lcd4_Write(0xc0+k,b[k]);}
		if(!mov){while(!mov)Delay(650);k++;if(k>9){k=0;}}
	}
	Lcd4_Command(0x0c);
	Lcd4_Display(0x80,"MOBILE NO STORED",16);
	Lcd4_Display(0xc0,"                ",16);
	for(i=0;i<10;i++){EEPROM_WRITE(i,b[i]);Delay(5000);}
	for(i=0;i<10;i++){b[i]=EEPROM_READ(i);Delay(6500);Lcd4_Write(0xc4+i,b[i]);}
	Delay(65000);Lcd4_Command(0x01);
```

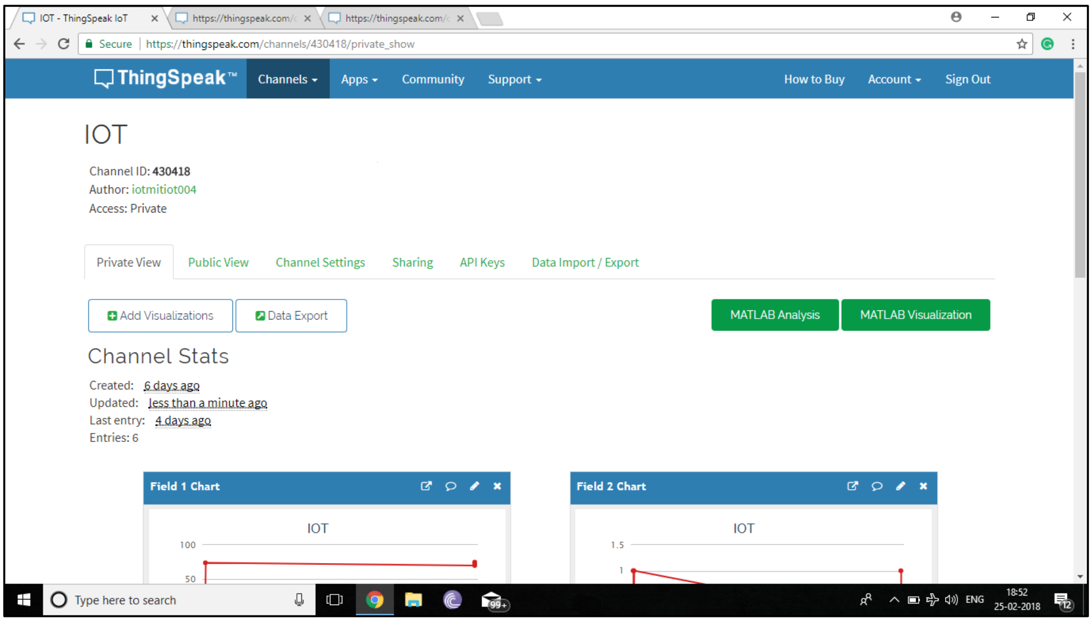
```
	Delay(65000);
}
void Mobile_Init()
{
	Lcd4_Display(0x80,"Initz...........",16 );
	Serial_Conout("AT",2);
	Serial_Out(0x0d);Serial_Out(0x0a);
	Delay(65000);Delay(65000);
	Serial_Conout("AT+CMGF=1",9);
	Serial_Out(0x0d);Serial_Out(0x0a);
	Delay(65000);Delay(65000);
	Serial_Conout("AT+CNMI=2,2,0,0,0",17);
	Serial_Out(0x0d);Serial_Out(0x0a);
	Delay(65000);Delay(65000);
}
void Msg_Send()
{
	unsigned char i=0;
	Lcd4_Display(0x80,"MESSAGE SENDING ",16 );
	Lcd4_Display(0xC0,"................",16 );
	Serial_Conout("AT+CMGS=",8);
	Serial_Out('"');
	//Serial_Conout("9524095378",10);
	for(i=0;i<10;i++){//b[i]=EEPROM_READ(i);Delay(6500);
	Lcd4_Write(0xc4+i,b[i]);Serial_Out(b[i]);}
```

```
        Serial_Out("");
        Serial_Out(0x0d);Serial_Out(0x0a);
        Delay(65000);Delay(65000);
        send_msg();
}
void send_msg()
{
        send_data(hb);
        Serial_Out('?');
        if(vv){Serial_Out('1');}
        else{Serial_Out('0');}
        Serial_Out('?');
        if(kk){Serial_Out('1');}
        else{Serial_Out('0');}
        Serial_Out('?');
        Serial_Out(0x0d);Serial_Out(0x0a);
        Delay(65000);Delay(65000);
        Serial_Out(0x1a);
        Lcd4_Command(0x0C);
        Delay(65000); Delay(65000);
        Lcd4_Command(0x01);
        Delay(65000); Delay(65000);
        Delay(65000);Delay(65000);
}
```

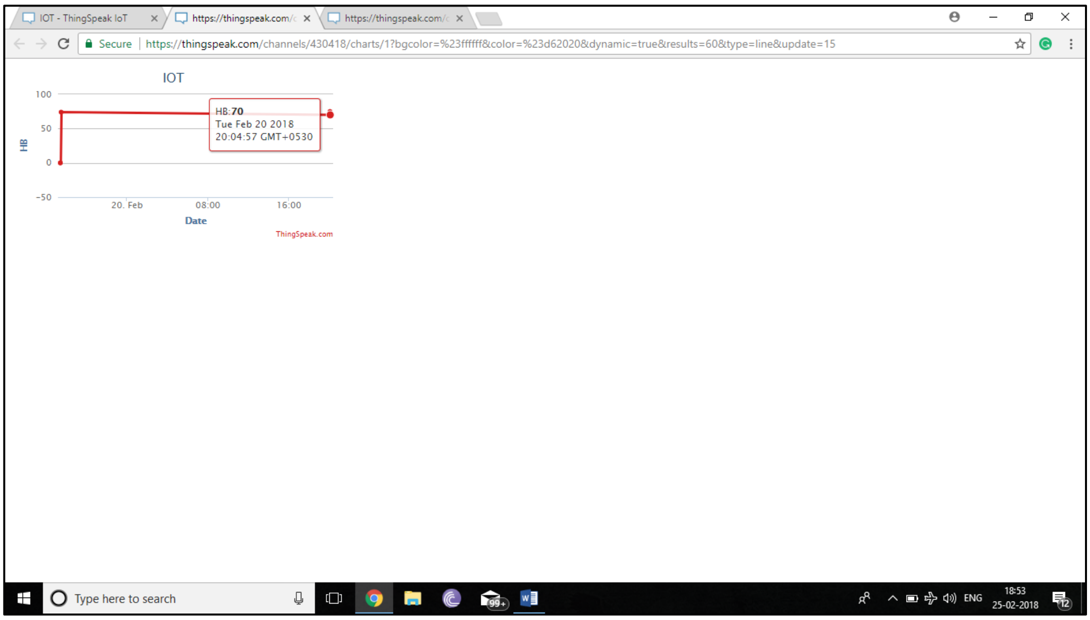
```
void send_data(unsigned int jk)
{
	//Serial_Out(jk%10000/1000+0x30);
	Serial_Out(jk%1000/100+0x30);
	Serial_Out(jk%100/10+0x30);
	Serial_Out(jk%10/1+0x30);
}
```

5.3 EXPERIMENTAL RESULT

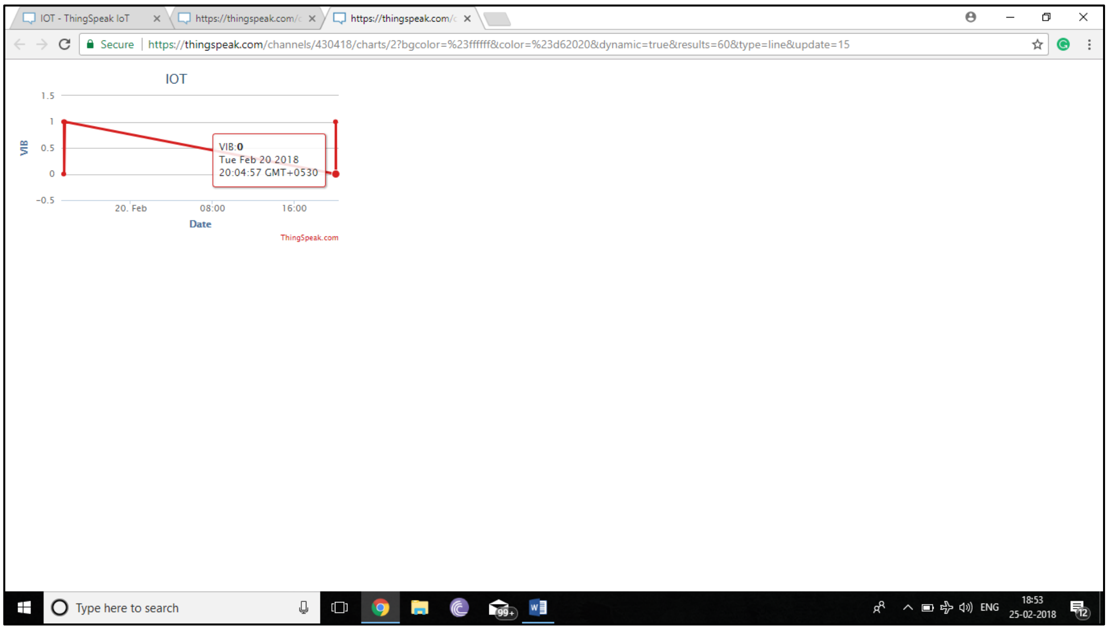
STATUS IN CLOUD SERVER



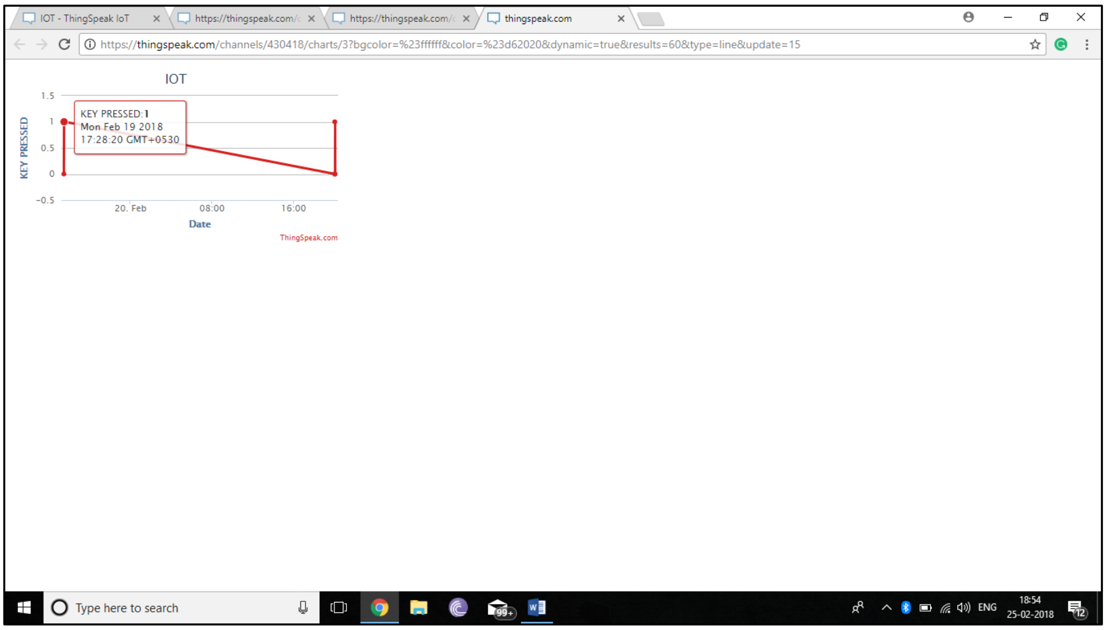
HEARTBEAT SENSOR STATUS



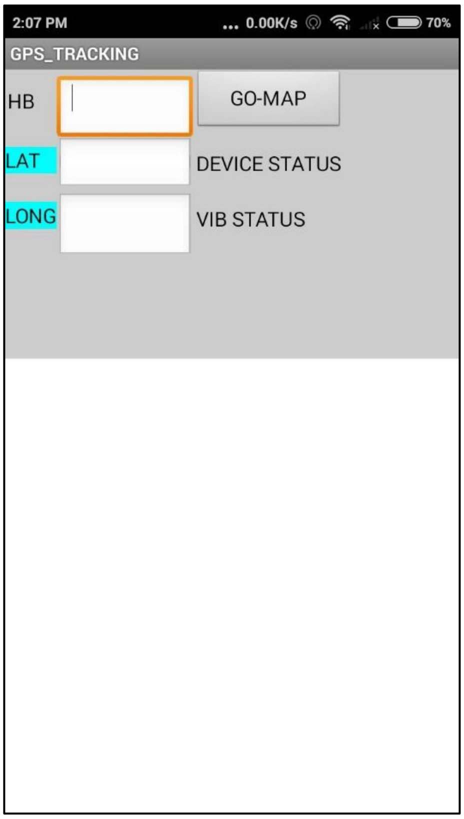
VIBRATION SENSOR STATUS

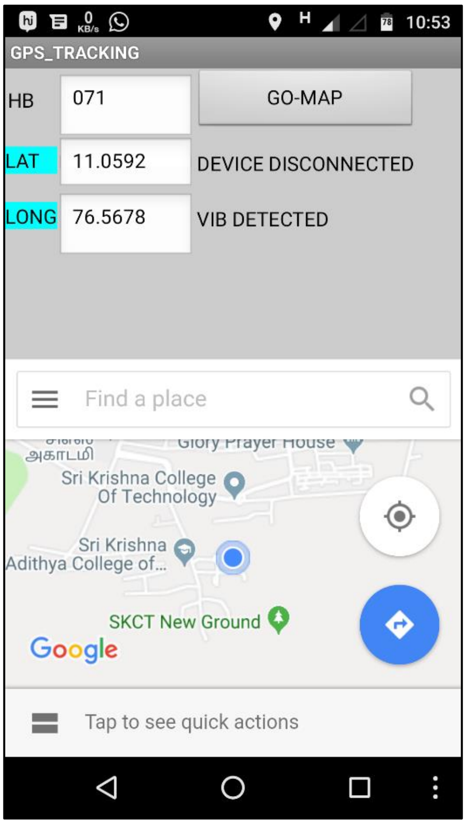


PUSH BUTTON STATUS



MOBILE ANDROID APP





6. CONCLUSION AND FUTURE ENHANCEMENT

A system has been implemented for monitoring children 24*7. The concluding remarks and the future works of the project have been discussed.

6.1 CONCLUSION

The child safety system has been developed to monitor the children 24*7 so that the parents gets notified when the child faces any sort of danger. It has been designed by combining certain sensors and certain devices to find whether the child is in danger or not. The parents get notified in emergency cases and when it's not a emergency one, they can check the status with the cloud user ID provided. The sensors are used to measure the pulse rate and vibration level if observed any. And the GPS helps the parents to locate their kid whenever necessary, GSM is used to notify parents via an encrypted SMS in which data are fetched by the Child

Safety App. These altogether construct the notify parents on child safety and monitoring system.

6.2 FUTURE ENHANCEMENT

The system is done only for those who have android mobiles, so in future the system can be done for all type of mobile users. For that the data has to be sent directly via an SMS instead of an encrypted one. Some additional features that can be added is children can call the parents in case of emergency. The system can also have camera so that in any emergency cases parents can have a view on the child's current surroundings.

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