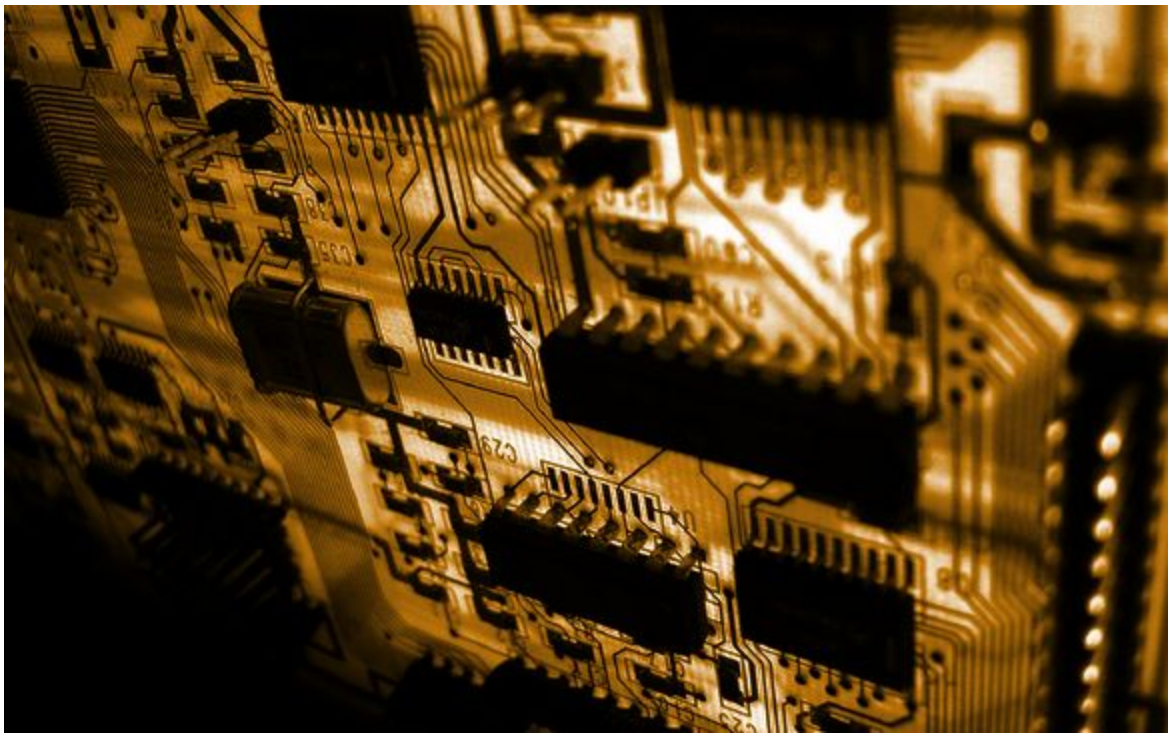
CO PROJECT PROGRESS REPORT

SafeFirst

(A Women Safety Device)



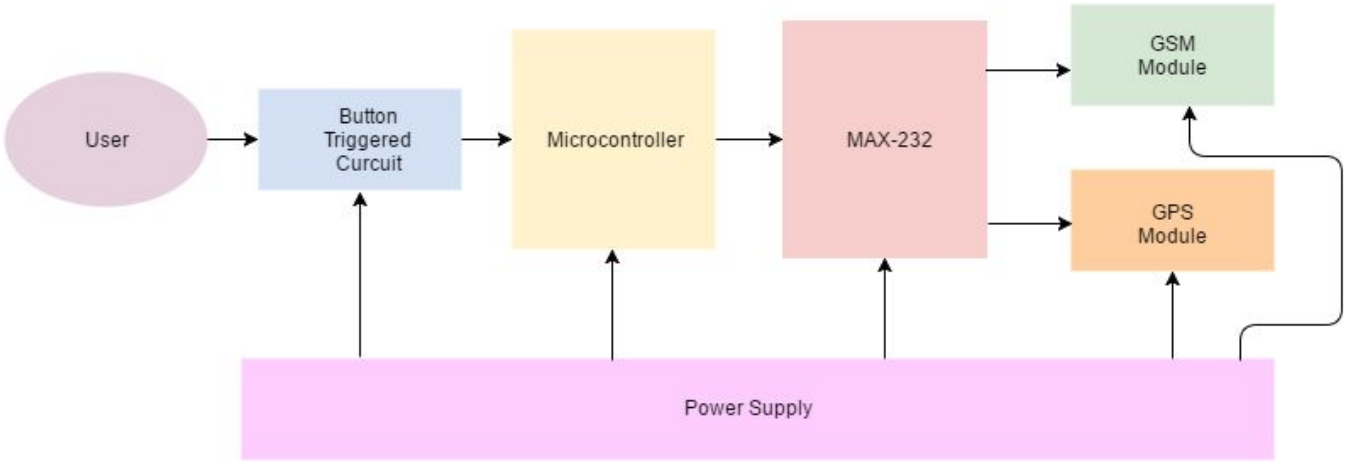
Aakash Deep (2015001)
Akarsha Sehwag (2015010)
Anannya Uberoi (2015014)
Y S Ramya (2015117)
Sarthak Jindal (2015169)

DESIGN

The project aims to implement a personal protection device which can be used particularly by women or children to enforce safety in case of emergency situations. The device prototype could be extended to a miniature safety gizmo which could be clipped to jeans, belts or handbags when it is difficult and time consuming to access the phone.

Intruder → Tap the device (or carry out a pre-defined custom gesture) → Signal sent to app → Message sent to 5 emergency contacts and 5 nearest police stations

We also plan to implement either a speaker or an automatic voice which screams out loudly to attract attention during the emergency.



(Block Diagram Interface)

ARCHITECTURAL COMPONENTS

The project would use an 8051 microcontroller as the main hardware component. Within it, the various architectural components are:

- ❏ Interrupts
- ❏ TX/RX pins
- ❏ Data Bus
- ❏ Address Bus
- ❏ Timer Delay

- Crystal Oscillator
- CPU

The external components used are:

- MAX-232
- GPS Module
- GSM Module
- Push Button
- Power Supply

SOURCE CODE

```
#include <reg51.h>
#include <AT89X51.H>
#define port2 P2

unsigned char *command_AT = "AT\r";
unsigned char *command_CMGF="AT+CMGF=1\r";
unsigned char *command_CMGS;
unsigned char *message="SAVE ME I'M AT THIS PLACE\n--Ramya";
unsigned char CTRLZ =0x1A;

int switch_pin; //P3.2

char info[70];
char test[6]={"$GPGGA"};
char comma_position[15];
unsigned int check=0,i;
unsigned char a;
void receive_data();

void delay(unsigned int msec)
{
int i,j ;
for(i=0;i<msec;i++)
        for(j=0;j<1275;j++);
```

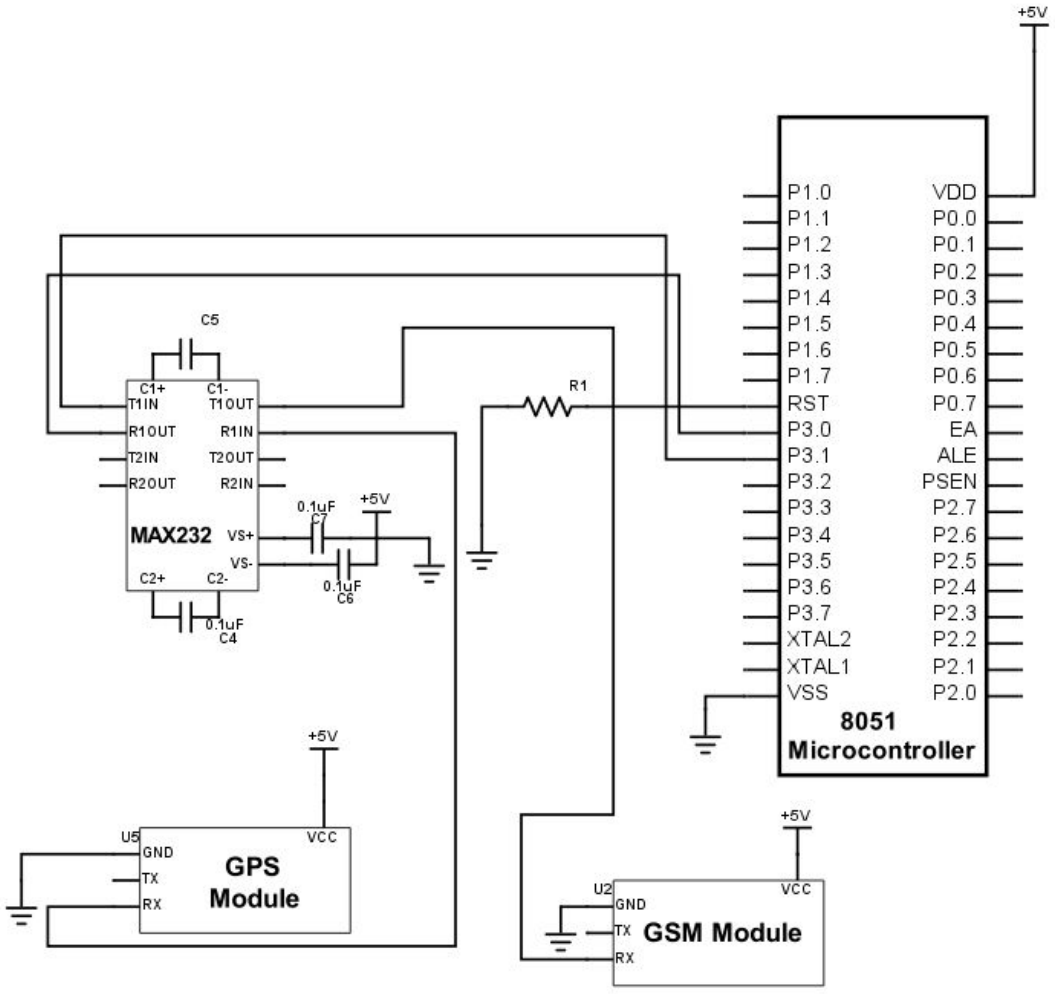
```
}

void find_comma()
{
	unsigned int i,count=0;
	for(i=0;i<70;i++)
	{
		if(info[i]==',')
		{
		comma_position[count++]=i;
		}
	}
}

void init()
{
	TMOD=0x20; //Timer select mode2 (8 bit auto-reload)
	TH1=0xfd; //the higher byte of timer1 is set for 9600 baud_rate
	SCON=0x50; //mode1 8-bit UART to enable receiving of serial data;
	TR1=1; //enable timer 1
	IT0=0;
	IE=0x91;
}

void compare()
{
	IE.4=0; //Interrupt disable
	find_comma(); //Function to detect position of comma in the string
	lcd_latitude(); //Function to show Latitude
	lcd_longitude(); //Function to show Longitude
	check=0;
	IE.4=1; //Interrupt enable
}

void receive_data() interrupt 4
{
	info[check++]=SBUF; //Read SBUF
```

```
	if(check<7) //Condition to check the required data
	{
		if(info[check-1]!=test[check-1])
			check=0;
	}
	RI=0;
}

void ex0_isr (void) interrupt 0
{
	GPS_location_receive();
	while(1)
	{
		if(check==69)
			compare();
	}

	GSM_init();
	send_messages();
}

void receive_data()
{
	info[check++]=SBUF;
}


void sendcommandcharbychar(unsigned char ch)
{
	SBUF=ch;
	while(TI==0); //wait until the char is sent and TI is set to 1
	TI=0; // set TI back to 0
}
```

```
void sendcommand(unsigned char *p)
{
	unsigned char *temp=p;
	while(*temp!=0x00)
	{
		sendcommandcharbychar(*temp);
		temp++;
	}
}

void GSM_write(unsigned char *command_CMGS)
{
	sendcommand(command_AT);
	sendcommand(command_CMGF);
	sendcommand(command_CMGS);
	sendcommand(message);
	sendcommand(CTRLZ);
}

void send_messages()
{
	command_CMGS="AT+CMGS=\"9654309726\"\r"; //aakash
	GSM_write(command_CMGS);
	command_CMGS="AT+CMGS=\"9958221803\"\r"; //sarthak
	GSM_write(command_CMGS);
	command_CMGS="AT+CMGS=\"9971408507\"\r"; //akarsha
	GSM_write(command_CMGS);
	command_CMGS="AT+CMGS=\"8527617051\"\r"; //anannya
	GSM_write(command_CMGS);
	command_CMGS="AT+CMGS=\"8375895350\"\r"; //ramya
	GSM_write(command_CMGS);
}

void main()
{
	while(1)
```

```
        {
                switch_pin=1;
                init();
        }
}
```

INTERFACING DIAGRAM



RESULTS

The components have been individually tested and the code is yet to be run on the unified system.