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Trusty Paragon for Human Life Protection in Remote Locations

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Abstract: ***Agriculture is a backbone of our country. About 70% of India's revenue comes from agriculture. In this project we are proposing the model which prevents the human life risk when bpow lin cut in thenelectrical poles, and the indication where is has been failed and in which field. During rainy season uprooting of electri poll is normally found in agriculture fields. These happen due to heavy flow of muddy water ,wind etc. hen such incidents happen will be great loss in life and property. This project concentrates to solve such problems. Project uses separatel ypowered equipment where it monitors the power grid and electrical Any changes or abnormality will be sensed and mmediate information will be sent The ormation contains line problem or power line cut with GPS location, The GPS location will be in latitude and longitude. The information will be in the form of message, sent through GSM. The indicating light and buzzer will ON and blow the sound respectively.***

Keywords: GPS Location, GSM, Voltage divider, Comparator.

I. INTRODUCTION

Agriculture is we backbone of our country. About 70% of India's revenue from agriculture.
In this are proposing he model which prevents the human life risk, when power line cut in the electrical poles, and the indication where is been failed and in which field During rainy season uprooting of electric poll is normally found in agriculture fields.
These happen due to heavy flow of muddy water, wind etc. When such incident happen there will be great loss in life and property. This project concentrates to such problems Project uses separately powered equipment where it monitors the power grid and electrical pole. Any changes or abnormality will be sensed and immediate information will be sent.
The information contains line problem or power line cut ith GPS location, he GPS location will be in latitude and longitude. The information will be in the form of message, sent through GSM. The indicating light and buzzer will ON and blow the sound respectively.

II. OBJECTIVE

The projects aim to build new safety systems for damage control of power grids and electric pole. A ysafety sstem toindicate physicadamage of power line and uprooting of pole to KEB rough GSM.

III. THEORETICAL BACKGROUND

During rainy eason uprooting of electric poll is normally found in agriculture fields. This happen due to heavy flow of uddy water wind etc when such incidents happen there will be great loss in life and property
This project concentrates to solve such problems. Project uses separately powered equipment where it the power grid and electrical pole. Any changes or abnormality will be sensed and immediate information will be sent.

IV. METHODOLOGY

Electric pole hysical structure whenever bnormal movement is detected intimation sent When power fails to physical damage of wire then it is sensed and trigger buzzer Such failur information of power grid is sent to control room through GSM and also the information is sent to the land owner through GSM with GPS locations .

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V. BLOCK DIAGRAM

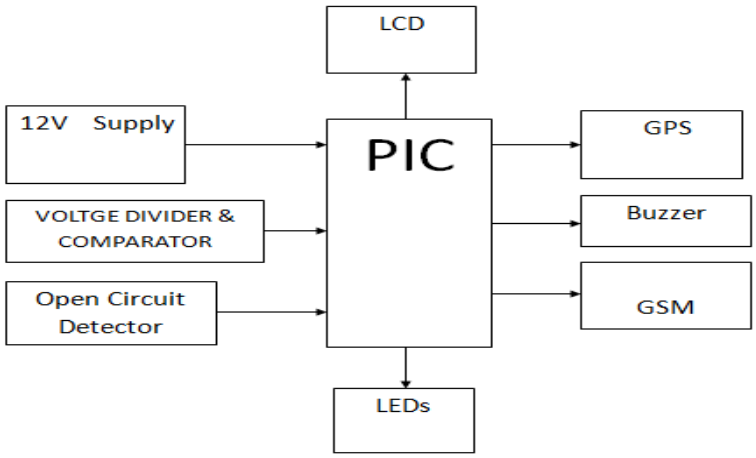

Fig: 2.1 Block diagram of trusty paragon for human life protection in remote locations

A. Hardware Required

1) PIC 18f458
2) ALCD
3) GSM
4) Buzzer
5) Power Supply
6) Relay
7) LEDs
8) Voltage divider
9) Comparator

B. Software Used

1) MP LAB
2) Pic kit Programmer

VI. WORKING PROCEDURE

Agriculture is a of our country About 70% of India's revenue comes from agriculture In his project we are proposing the model which prevents the human life risk, when power line cut in the electrical poles, and indication where is has been failed and in which field.

During rainy season uprooting of electric poll is normall found in agricultur fields.Thesehapp endu to heavy flow of muddy water, wind etc When such incidents happen there wil be great loss life and property.

This project helps in identifying the fault conditions of electric pole or transmission lines in remote locations. Whenever the fault occurred in the pole like pole tilting and live line problem like power line cut due to some abnormal conditions like heavy voltage, due to heavy rain fall and heavy wind, the identification is done through indication devices like buzzer and led.

The fault is judged through comparator in this project. When the power line is cut the comparator compares the output voltage and input voltage, if any error occurred in the comparator that signal is sent to PIC controller that PIC controller triggers the led and buzzer, by that the indication is given. Similarly the PIC controller sends the SMS to the land owner and KEB through GSM with accurate location through GPS. Location will be in latitude and longitude.

VII. COMPONENTS

A. Pic Micro Controller

Microchip products meet the specification contained in their particular Microchip Data Sheet. Microchip believes that its family of products is one of the most secure families of its kind on the market today, when used in the intended manner and under normal conditions. There are dishonest and possibly illegal methods used to breach the code protection feature. All of these methods, to our

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B. L C D

A liquid crystal display is a thin, flat electronic visual display that uses the light modulating properties of liquid crystals (LCs). LCs does not emit light directly. In liquid crystal displays (LCDs) of liquid crystal technology isthe most common applications. An advanced VGA computer screen from the pervasive wrist watch and pocket calculator, this type of display has evolved into an important and ambidextrous interface. Consist of a liquid crystal display, an array of tiny segments (called pixels) and to present the information that can be manipulated. This basic common idea is to all displays; alienate from simple calculators to a full color LCD television. The primary factor was size, an LCD consisting of primarily with some liquid crystal material between them of two glass plates. There is no bulk amount picture tube. This gives LCDs practical for applications where size (as well as weight) is necessary. In general, LCDs uses very low power than the cathode-ray tube (CRT) counterparts. Many LCDs are ruminative, means that they use only atmosphere light to illuminate the display. Even displays that do consume much less power than CRT devices require an external light source (i.e. computer displays).

C. *L E D*

The Light emitting diode is a two-lead semiconductor light source. In 1962, Nick Holonyak has come up with an idea of light emitting diode, and he was working for the general electric company. The LED is a special type of diode and they have similar electrical characteristics of a PN junction diode. Hence the LED allows the flow of current in the forward direction and blocks the current in the reverse direction. The LED occupies the small area which is less than the **1 mm2**. The applications of LEDs used to make various electrical and electronic projects. In this article, we will discuss the working principle of the LED and its applications.

D. Motor Driver Circuit

The Device is a monolithic integrated high voltage, high current four channel driver designed to accept standard DTL or TTL logic levels and drive inductive loads (such as relays solenoids, DC and stepping motors) and switching power transistors. We have used this driver circuit too drive the motors of the robot. Each L293D is used to drive two motors.

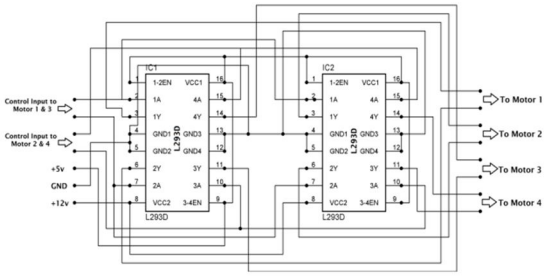

Fig 4.1 Motor Driver Circuit

Two L293D's are used to drive four motors. When both the inputs are low the motor will be in the halt state, when the first input is high and the second input is low the motor will move in the forward direction, when first input is low and second input is high the motor will move in the reverse direction and when both the inputs are low the motor will be in the halt state.

VIII. PROJECT ALGORITHM

```
//-------------------------------------------------------------------------------------------------------------
//          Proj_Main.c
//-------------------------------------------------------------------------------------------------------------
//-------------------------------------------------------------------------------------------------------------
// IO Lines Used
```

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```
//---------------------------------------------------------------------------------------------------------------
//---------------------------------------------------------------------------------------------------------------
// Includes
//---------------------------------------------------------------------------------------------------------------
#include<htc.h>
#include<stdio.h>
//__CONFIG(1, 0x3F3A );
__CONFIG(1,HS);
__CONFIG(2,PWRTEN & BORDIS & WDTDIS);
//__CONFIG(3,WDTDIS);
__CONFIG(4,LVPDIS);
#include "ALCD_8.c"
#include "UART.c"
#include "GSM.c"
#include "GPS.c"
#include "ADC.c"
#define Switch RC0
#define Buzzer RC1
#define Motor_1 RC2
#define Motor_2 RC3
#define LED RB0
#define Ckt_Chk RB1
#define GLOBAL_INTERRUPT_ENABLE GIE
//---------------------------------------------------------------------------------------------------------------
// Global VARIABLES
//---------------------------------------------------------------------------------------------------------------unsigned int
Flex_1_Init_Value,Flex_1_Value,Flex_2_Value,Flex_3_Value,Flex_1_InitValue,Flex_2_InitValue,Flex_3_InitValue,Temp1;
unsigned int buffer; unsigned int ADC_Volt, ADC_Data;
unsigned char Volt_Value[10]="0.000";
extern bit Rx_St_Flag;
unsigned char GPS_Cnt;
//---------------------------------------------------------------------------------------------------------------
// Global CONSTANTS
//---------------------------------------------------------------------------------------------------------------
//---------------------------------------------------------------------------------------------------------------
// Function PROTOTYPES
//---------------------------------------------------------------------------------------------------------------void Device_Init(void); void
interrupt UART0M1_ISR( void );
//---------------------------------------------------------------------------------------------------------------
// void main (void)
//---------------------------------------------------------------------------------------------------------------
void main (void)
{unsigned char Cnt=0;
TRISC0 = 1;
TRISC1 = 0;
TRISC2 = 0;
TRISC3 = 0;
TRISB0 = 0;
TRISB1 = 1;
Device_Init();
```

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```
Rx_ST_Flag = 0;
Rx_count = 0;
//while(1);
while(1)
{if(Switch == 0)
{Motor_1 = 0;
Motor_2 = 1;
MSDelay(800);
Motor_1 = 0;
Motor_2 = 0;
MSDelay(5000);
if(Ckt_Chk == 1)
{Buzzer = 1;
LED = 0;
MSDelay(2000);
Buzzer = 0;
LED = 1;
ALCD_Message( 0xC0, "LINE CUT");
Lat_Long[46] = 'L';
GPS_Rx();
MSDelay(3000);
MSDelay(3000);
}
Motor_1 = 1;
Motor_2 = 0;
MSDelay(900);
Motor_1 = 0;
Motor_2 = 0;
MSDelay(2000);
}
}
while(1)
{
;
}
}
void Device_Init(void)
{
Motor_1 = 0;
Motor_2 = 0;
GLOBAL_INTERRUPT_ENABLE = 0;
Buzzer = 1;
LED = 0;
Rx_ST_Flag = 0;
Rx_count = 0;
ALCD_Pin_Config();
ALCD_Init( );
ALCD_Message( 0x80, "    WELCOME     " );
MSDelay( 2000 );
ALCD_Comm( 0x01 );
```

```
MSDelay( 200 );
Buzzer = 0;
LED = 1;
/*
Motor_1 = 0;
Motor_2 = 1;
MSDelay(800);
Motor_1 = 0;
Motor_2 = 0;
MSDelay(3000);
Motor_1 = 1;
Motor_2 = 0;
MSDelay(900);
Motor_1 = 0;
Motor_2 = 0;
*/
UART_Init();
Rx_ST_Flag = 0;
Rx_count = 0;
GSM_Init();
MSDelay(500);
GSM_Send_SMS(Mb_Num,"SYSTEM STARTS");
MSDelay(1000);
Rx_ST_Flag = 0;
Rx_count = 0;
ALCD_Message( 0xC0, "MSG SENT" );
MSDelay(1000);
ALCD_Comm( 0x01 );
MSDelay( 200 );
while(GPS_Cnt <= 1)
{
GPS_Rx();
MSDelay(2000);
GPS_Cnt++;
}

GPS_Cnt = 0;
Rx_ST_Flag = 0;
Rx_count = 0;
ALCD_Comm( 0x01 );
MSDelay( 200 );
ADC_IO_Pin_Config( );
ADC_Config( );
GLOBAL_INTERRUPT_ENABLE = 1;
}
void interrupt UART0M1_ISR( void )
{
        if(RCIF == 1)               //5ht bit in PIR1(monitor receive flag is set)
        {
                Rx_ST_Flag = 1
```

```
                if (OERR == 1)              //1st bit in RCSTA register
                {                                           // overrun, reset UART
                        CREN = 0;                   // disable UART
                        CREN = 1;                   // re-enable UART
                }
                Rx_data_arr[Rx_count++] = RCREG;
                Rx_data_arr[Rx_count] = '\0';
                if(Rx_count == 299)
                {
                        Rx_count = 0;
                }
        }
        if( ADIF == 1 )
        {
                ADC_Result_H = ADRESH;
                ADC_Result_L = ADRESL;
                Convertion_Complete_Flag = 1;
                ADIF = 0;
        }
}
```

IX. FUTURE SCOPE

In this project we are proposing the model which prevents the human life risk, when power line cut in the electrical poles and the indication here is ha been failed and in which field by using GSM and GPS System. We can extend t his technology by using PLC.

X. CONCLUSION

During ainy season uprooting of electric oll is normally found in agriculture fields. These happen to heavy flow of muddy water, ind etc when such incidents happen there will be great loss in life and property. This project concentrates to solv such problems.Project uses separately powered equipmen where it monitors the power grid and electrical pole. Any changes or abnormality will be sensed and immediat information will be sent. The information contains line problem or power line cut with GP location, The GPS location will be in latitude and longitude.

XI. PROJECT MODEL

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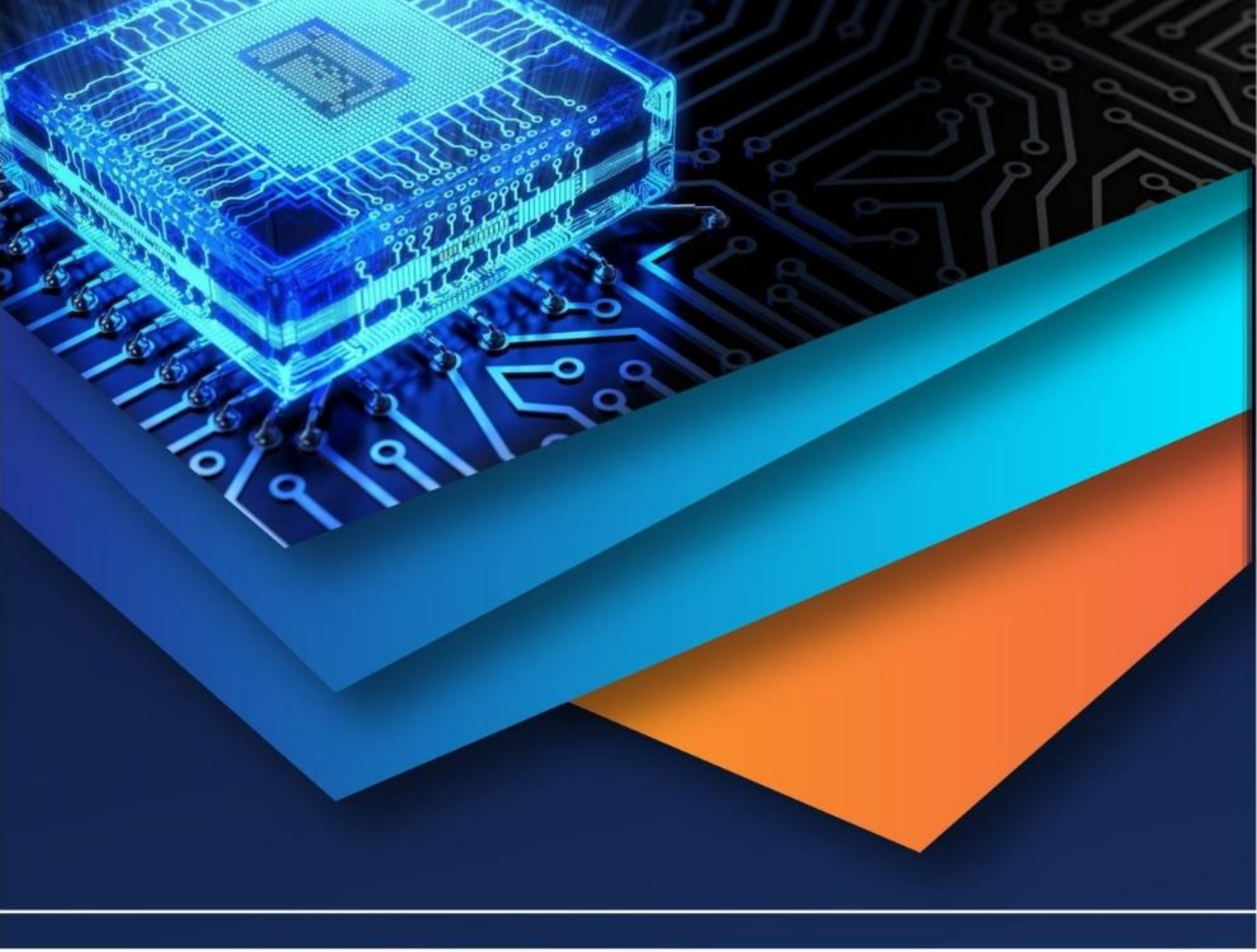

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