

Hybrid Powered Energy management system using wireless sensor network

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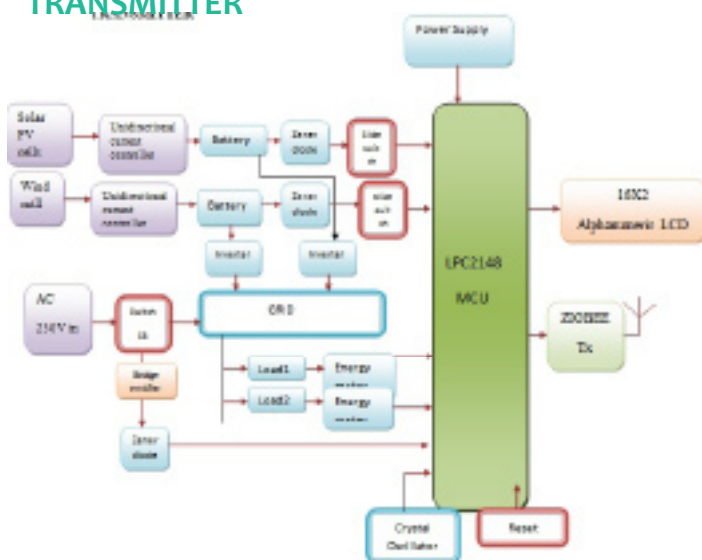
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ABSTRACT:

In this application we can generate the energy using renewable energy sources one is by using solar energy, another one is wind mill and one more the optional source is conventional power. These energy sources we are connecting to the grid via battery and inverter, Parallely the battery output is connected to micro controller unit and these microcontroller is connected to LCD for displaying which source is available and also for displaying the battery voltage. Whenever the load is connected some units will be consumed, these units will be calculated and displayed on the LCD by using controller and the total transmitter section information is transmitted to receiver section and displayed on the Pc through a wireless communication by using Zigbee technology. This project uses regulated 3.3V, 750mA power supply. 7805 three terminal voltage regulator is used for voltage regulation. Bridge type full wave rectifier is used to rectify the ac output of secondary of 230/12V step down transformer.

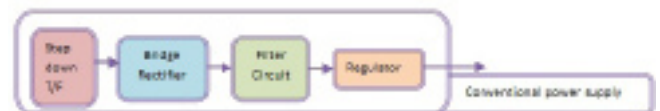
Block Diagram: TRANSMITTER



RECIEVER:



POWER SUPPLY DESIGN



As home energy use is increasing and renewable energy systems are deployed, home energy management system (HEMS) needs to consider both energy consumption and generation simultaneously to minimize the energy cost. Here a smart HEMS architecture that considers both energy consumption and generation simultaneously. ZigBee based energy measurement modules are used to monitor the energy consumption of home appliances and lights. The current energy crisis has required significant energy reduction in all areas. The energy consumption in home areas has increased as more home appliances are installed. Energy saving and renewable energy sources are considered as methods of solving home energy problem. Both energy consumption and generation should be simultaneously considered to save the home energy cost.

Solar Panel:

A solar panel consists of many Photo voltaic cells. It is used to absorb the sun rays at day time and take a backup for use at night time. In today's world the usage of the solar panel is very high to reduce the power consumption. To increase the power generation in solar panel by using Maximum Power Point Tracking Technique. This technique can be simply done by using two LDR and a DC motor.


```

IOoDIR &= ~(1<<S2);           //Set as input

IOoDIR &= ~(1<<S3);           //Set as input

i2c_lpc_init(I2C_SPEED_100); //Po.2,Po.3
LCD_init();
adclnito_3();

if(!(IOPINo & (1<<CLE)))
{
    for(i=0;i<=10;i++)
    {
        write(i,o);
        delay(100);
    }
    LCD_puts(oxco,"DATA CLEARED  ");
    LCD_puts(oxco,"RESTART SYSTEM...");
}
LCD_puts(oxco,"INITIALIZING..  ");

LCD_puts(oxco,"          ");

LCD_puts(ox80,"UNITS:");
LCD_cmd(ox86);
count=eeprom_memread(o);
conv(count);
LCD_putc('.');
LCD_cmd(ox8A);
count_p=eeprom_memread(1);
conv1(count_p);
delay(10);

while(1)
{
    putchar('\n');
    DelayMs(50);
    putchar('\r');
    DelayMs(50);

    putchar('U');
    DelayMs(50);
    conv_tx1(count,count_p);
    putchar(' ');
    DelayMs(50);
    if(adcReado_3()<10)
    {
        cal();
    }
}

```

```

if(!(IOPINo & (1<<S1)))
{
    LCD_cmd(oxco+7);
    LCD_putc('1');
}
else
{
    LCD_cmd(oxco+7);
    LCD_putc(' ');
}

if(!(IOPINo & (1<<S2)))
{
    LCD_cmd(oxco+9);
    LCD_putc('2');
}
else
{
    LCD_cmd(oxco+9);
    LCD_putc(' ');
}

if(!(IOPINo & (1<<S3)))
{
    LCD_cmd(oxco+11);
    LCD_putc('3');
}
else
{
    LCD_cmd(oxco+11);
    LCD_putc(' ');
}
}
}

```

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