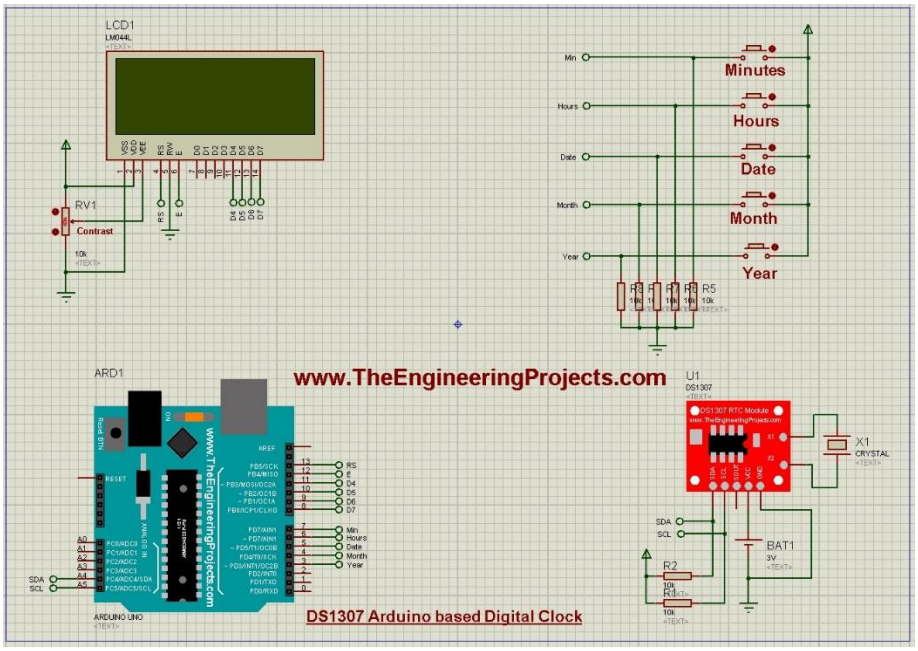
DS1307 Arduino based Digital Clock in Proteus

- Now, let's get started with designing of this DS1307 Arduino based Digital Clock.
- So, first of all, design a circuit in Proteus as shown in below figure:



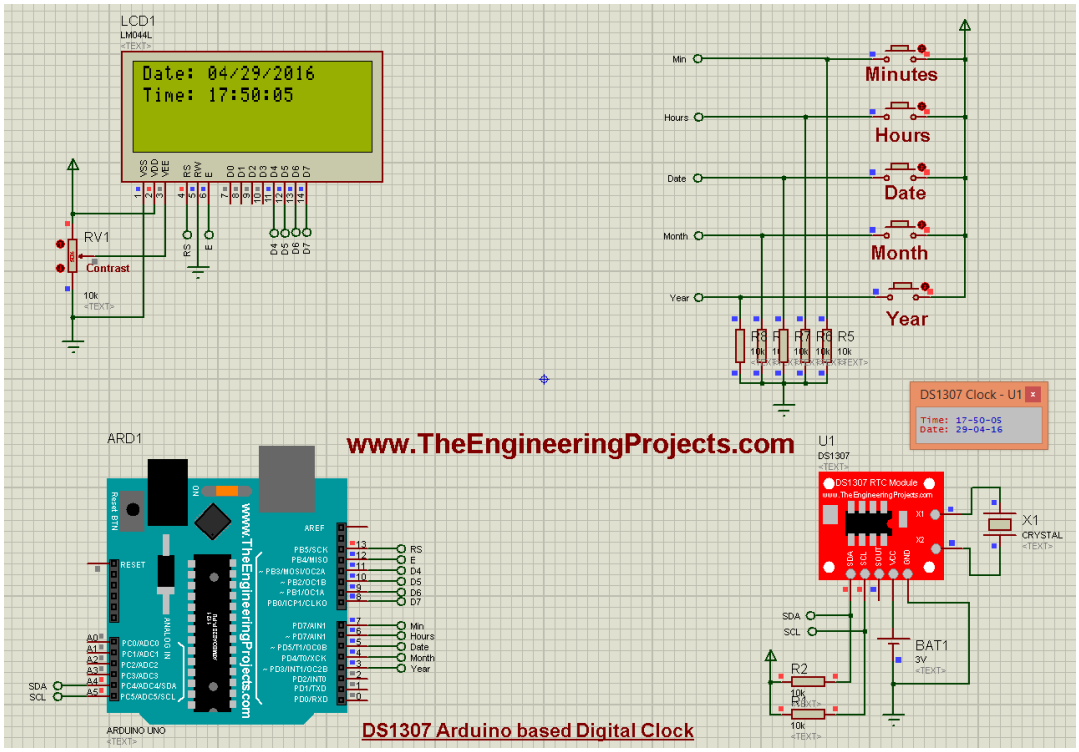
- You can see in the above figure that I have used Arduino UNO along with RTC module, LCD and the four buttons.
- These four buttons will be used to change the year,date etc as mentioned on each of them.
- Now here's the code for DS1307 Arduino based Digital Clock.

```
#include <LiquidCrystal.h>
#include <DS1307.h>
#include <Wire.h>

LiquidCrystal lcd(13,12,11,10,9,8);

int clock[7];

void setup(){
for(int i=3;i<8;i++){
 pinMode(i,INPUT);
}

lcd.begin(20,2);
DS1307.begin();
DS1307.setDate(16,4,7,0,17,50,04);//ano,mes,dia,semana,horas,minutos,segundos
}

void loop(){
DS1307.getDate(clock);
```

```
lcd.setCursor(0,1);
lcd.print("Time: ");
Print(clock[4]);
lcd.print(":");
Print(clock[5]);
lcd.print(":");
Print(clock[6]);
lcd.setCursor(0,0);
lcd.print("Date: ");
Print(clock[1]);
lcd.print("/");
Print(clock[2]);
lcd.print("/");
lcd.print("20");
Print(clock[0]);

if(digitalRead(7)){
 clock[5]++;
 if(clock[5]>59) clock[5]=0;
 DS1307.setDate(clock[0],clock[1],clock[2],0,clock[4],clock[5],clock[6]);
 while(digitalRead(7));
}

if(digitalRead(6)){
 clock[4]++;
 if(clock[4]>23) clock[4]=0;
 DS1307.setDate(clock[0],clock[1],clock[2],0,clock[4],clock[5],clock[6]);
 while(digitalRead(6));
}

if(digitalRead(5)){
 clock[2]++;
  if(clock[2]>31) clock[2]=1;
 DS1307.setDate(clock[0],clock[1],clock[2],0,clock[4],clock[5],clock[6]);
 while(digitalRead(5));
}

if(digitalRead(4)){
 clock[1]++;
 if(clock[1]>12) clock[1]=1;
 DS1307.setDate(clock[0],clock[1],clock[2],0,clock[4],clock[5],clock[6]);
 while(digitalRead(4));
}

if(digitalRead(3)){
 clock[0]++;
 if(clock[0]>99) clock[0]=0;
```

```
 DS1307.setDate(clock[0],clock[1],clock[2],0,clock[4],clock[5],clock[6]);
 while(digitalRead(3));
}


delay(100);
}

void Print(int number){
lcd.print(number/10);
lcd.print(number%10);
}
```

- Now get your hex file from Arduino software and then upload it in your Proteus software.
- Now run your simulation and if everything goes fine, then it will look like something as shown in below figure:



- Now you can see its today's date in the LCD and the same is shown over on the small pop up of DS1307 Clock.
- Now the time will start on ticking and the buttons will used to change the minutes hours etc.