BLUETOOTH BASED REAL TIME COLLEGE BELL WITH RTC

AIM:

Design and Development of Bluetooth based real time college bell with RTC.

PURPOSE:

Now a days alarm systems used in many applications like schools, colleges and offices. But most of them are manual. Automatic alarms works without manual dependences. Here we want to develop college bell based on RTC. It gives alarms when respective time trigger. Using Bluetooth user can change date and time settings. Here project title is Bluetooth based real time college bell with RTC.

DESCRIPTION:

This project has Bluetooth (HC-05) module, which is connected to Arduino through serial port.. RTC Module (DS1307) connected to Arduino I2C port and it works on crystal frequency. Relay can control Bell which is connected to Arduino digital pin.

WORKING:

In this project we can change date and time from Bluetooth app. Here time is in 24 hours format. User can change according to his requirement. Also user can configure 9 alarms in 24 hours. When any alarm trigger then relay will be ON. Relay controls Bell which gives high sound. All this alarm setting stored in Arduino EEPROM, so that alarms remains same when we Arduino switch OFF and ON. RTC time always displaying on 16x2 LCD display.

TECHNICAL SPECIFICATIONS:

HARDWARE:

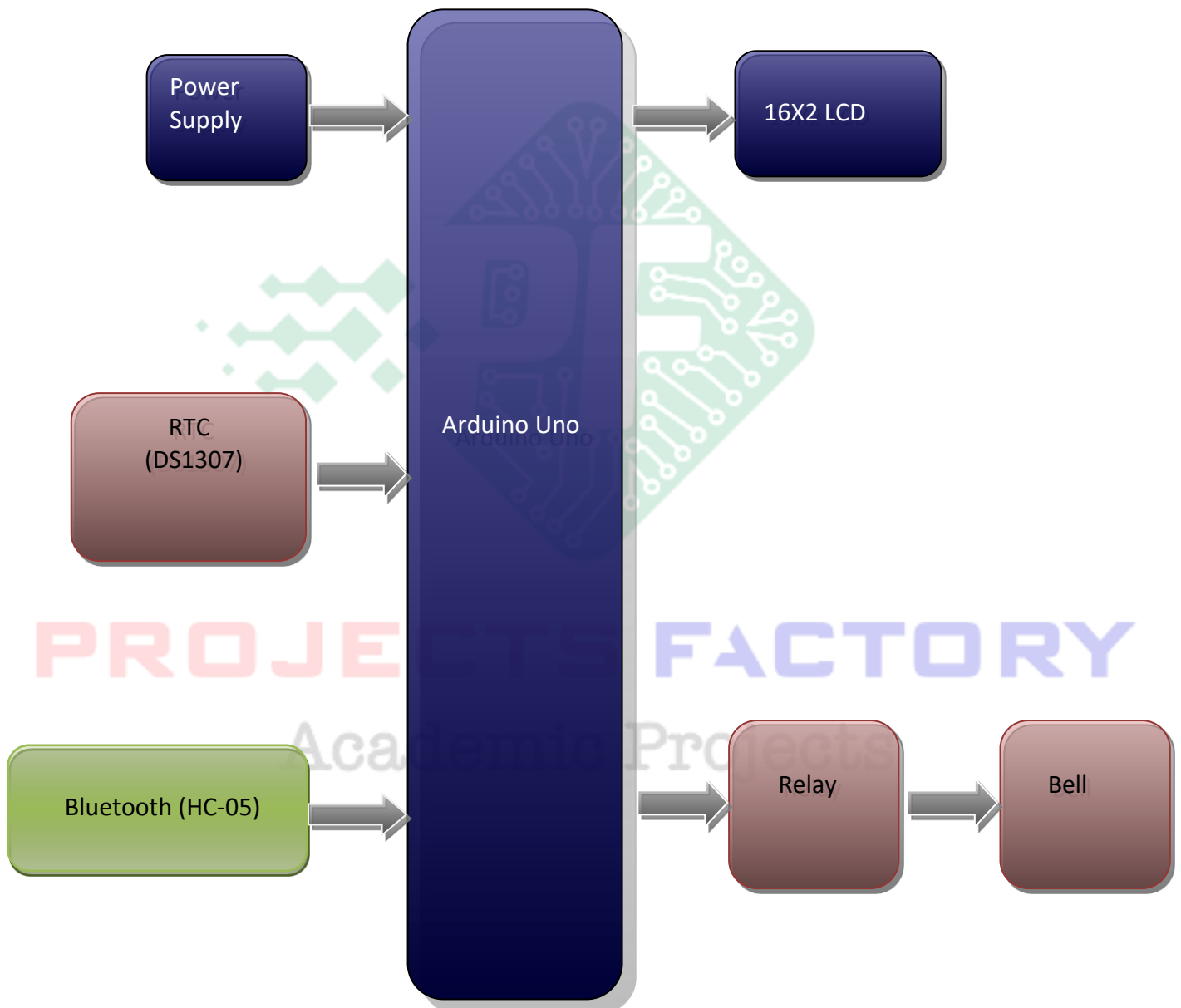|		
Microcontroller	:	Arduino Uno
Crystal	:	16 MHz
LCD	:	16X2 LCD
Bluetooth	:	HC-05
RTC	:	DS1307
Relay	:	DC 12V
Bell	:	AC 230V
Power Source	:	12v 2 amp Adaptor

SOFTWARE:

Arduino IDE

Proteus based circuit diagram

APPLICATIONS:

- ➤ College Bell Applications
- ➤ Office Applications
- ➤ Industrial Applications

BLOCK DIAGRAM:

```
Power          ──▶   ┌──────────┐   ──▶   16X2 LCD
Supply               │          │
                     │          │
RTC            ──▶   │ Arduino  │
(DS1307)             │   Uno    │
                     │          │
Bluetooth      ──▶   │          │   ──▶   Relay  ──▶  Bell
(HC-05)              └──────────┘
```

POWER SUPPLY BLOCKDIAGRAM:

Step down Transformer	→	Bridge Rectifier	→	Filter	→	Regulator	→	Output
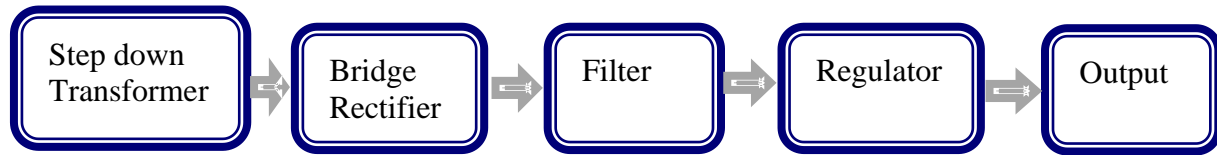
INTERFACES COVERD:

- We have covered Bluetooth (HC-05) module interfacing
- Relay with Alarm Bell
- RTC (DS1307 I2C) Interface