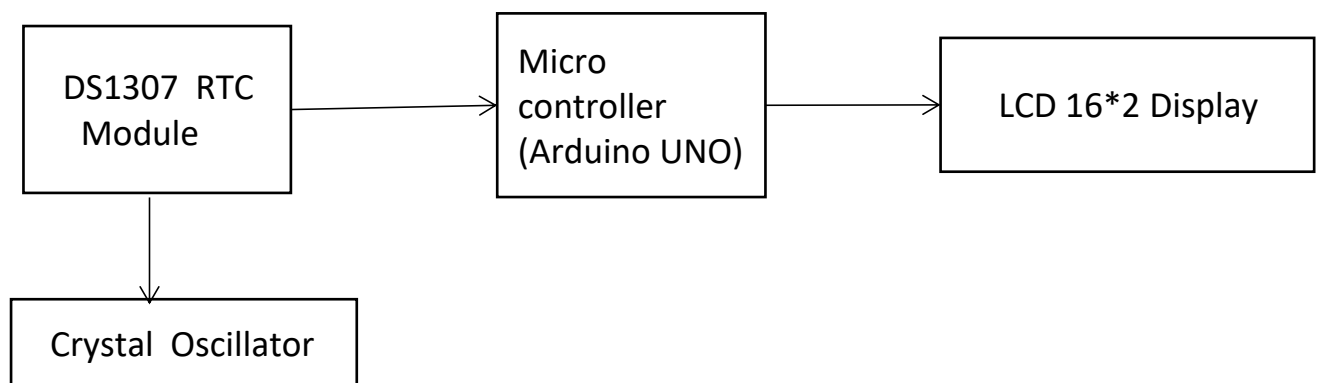# Real Time Clock

Objective: Design a Real Time Clock Using DS1307 RTC with Arduino and show the Time and Date on LCD.

Components Required: Arduino UNO, LCD 16*2 Module, DS1307 RTC Module, 32KHZ Crystal Oscillator, wires, Ground and Power Supply.

Block Diagram:

```
┌──────────────┐         ┌──────────────┐         ┌──────────────────┐
│ DS1307  RTC  │────────▶│ Micro        │────────▶│ LCD 16*2 Display │
│ Module       │         │ controller   │         │                  │
│              │         │ (Arduino UNO)│         │                  │
└──────┬───────┘         └──────────────┘         └──────────────────┘
       │
       ▼
┌──────────────────┐
│ Crystal  Oscillator │
└──────────────────┘
```

INPUT AND OUTPUTS:

S.NO	Description	Name	Type	Data direction	Spec	Remarks
1	DS1307 Serial clock Pin	SCL	INP	DI	5V DC	Active High
2	DS1307 Serial Data Pin	SDA	INP	DI	5V DC	Active High
3	LCD Reset Pin	RS	OUT	DI	5V DC	Active High
4	LCD Enable pin	E	OUT	DI	5V DC	Active High
5	LCD Data Pin1	D1	OUT	DI	5V DC	Active High
6	LCD Data Pin2	D2	OUT	DI	5V DC	Active High
7	LCD Data Pin3	D3	OUT	DI	5V DC	Active High
8	LCD Data Pin4	D4	OUT	DI	5V DC	Active High

Flow Chart:

```
            ┌─────────────┐
            │    Start    │
            └──────┬──────┘
                   │
                   ▼
    ┌──────────────────────────────┐
    │  Initialization of 16*2 LCD  │
    └───────────────┬──────────────┘
                    │
                    ▼
    ┌──────────────────────────────┐
    │      Initializing DS1307     │
    └───────────────┬──────────────┘
                    │
                    ▼
    ┌──────────────────────────────┐
    │ Read Current Time and Date   │
    │         from DS1307          │
    └───────────────┬──────────────┘
                    │
                    ▼
    ┌──────────────────────────────┐
    │       Display it on Lcd      │
    └───────────────┬──────────────┘
                    │
                    ▼
            ┌─────────────┐
            │    Stop     │
            └─────────────┘
```