**EP1000 Digital Fabrication Fundamentals**
**Module Project**

**Group:** Gp XX

**Adm No:** pNNNNNNN

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**Project Title:**

A Digital Clock with Temperature & Humidity readings

**What does it do?**

This is a digital clock with a 4-digit LED display. The project keeps exact time. When powered up, the project displays the date and time. You can also display the date, current temperature and humidity.

**What are it's features?**

a. Keeps exact time even when main power is removed.
b. Displays time, date, temperature and humidity
c. Uses push-button switches to select functions:
   i. date
   ii. temperature & humidity
   iii. clock functions (change time etc)

**What will you make?**

| | |
|---|---|
| CAD Design, Graphics | Casing design, display unit, housing, casing, informational text next to buttons. |
| Laser cutting | Casing for clock |
| 3D Printing | Display mounting, switches, CPU and module PCB supports |
| Processing | Clock, push-button presses, display, readings |
| Input devices | Push-button switches, DS3231 RTC, DHT-11 sensor |
| Output devices | TM1637 4-digit display, buzzer |

**Bill of materials**

| Sn. | Qty | Item Description | Approx Cost |
|---|---|---|---|
| 1 | 1 | Arduino Nano | $8.05 |
| 2 | 1 | TM1637 4-digit Display | $1.40 |
| 3 | 3 | Push-buttons (push to make) | $1.00 |
| 4 | 3 | 3mm assorted indicator LEDs | $0.20 |
| 5 | 1 | DHT-11 Temperature, humidity sensor | $1.55 |
| 6 | 1 | Buzzer | $0.25 |
| 7 | 1 | Real-time-clock DS3231 Module | $4.40 |
| 8 | 1 | Lithium Battery CP2032 | $1.50 |
| 9 | 1 | 5V DC power jack | $0.30 |
| 10 | 1 | A3 acrylic sheet 3mm (Black) | |

**References:**

1. Arduino Project Hub: 230 Clocks Project