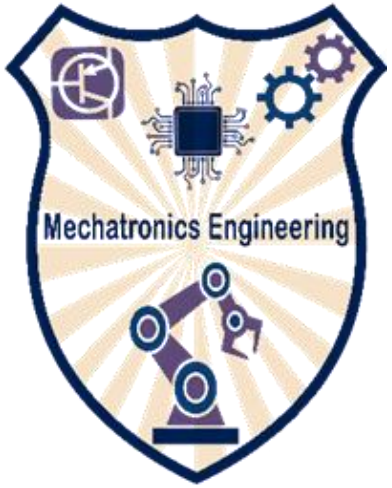

# Embedded System For Digital Scale With Bluetooth Interface




Presented By:

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# Presentation Layouts

- Introduction.
- Hardware Requirements.
- Schematic Diagrams of Load Cell with LCD.
- Schematic Diagrams of Thermistor with LCD.
- Schematic Diagrams of Load Cell with LCD.
- Design Video.
- Conclusion.

# Introduction

- A 1 kg digital balance is constructed by carefully integrating complex electronic parts, accurate measurement mechanisms, and cutting-edge sensor technologies.
- Making a weighing device that can precisely measure items with a resolution of up to one kilogram is the main objective.
- The choice and installation of an appropriate weight sensor, such as a strain gauge load cell, which converts physical weight into electrical signals, is the key component of the digital balance.
- To generate accurate weight readings, these signals are converted from analog to digital under the direction of an Hx-711.

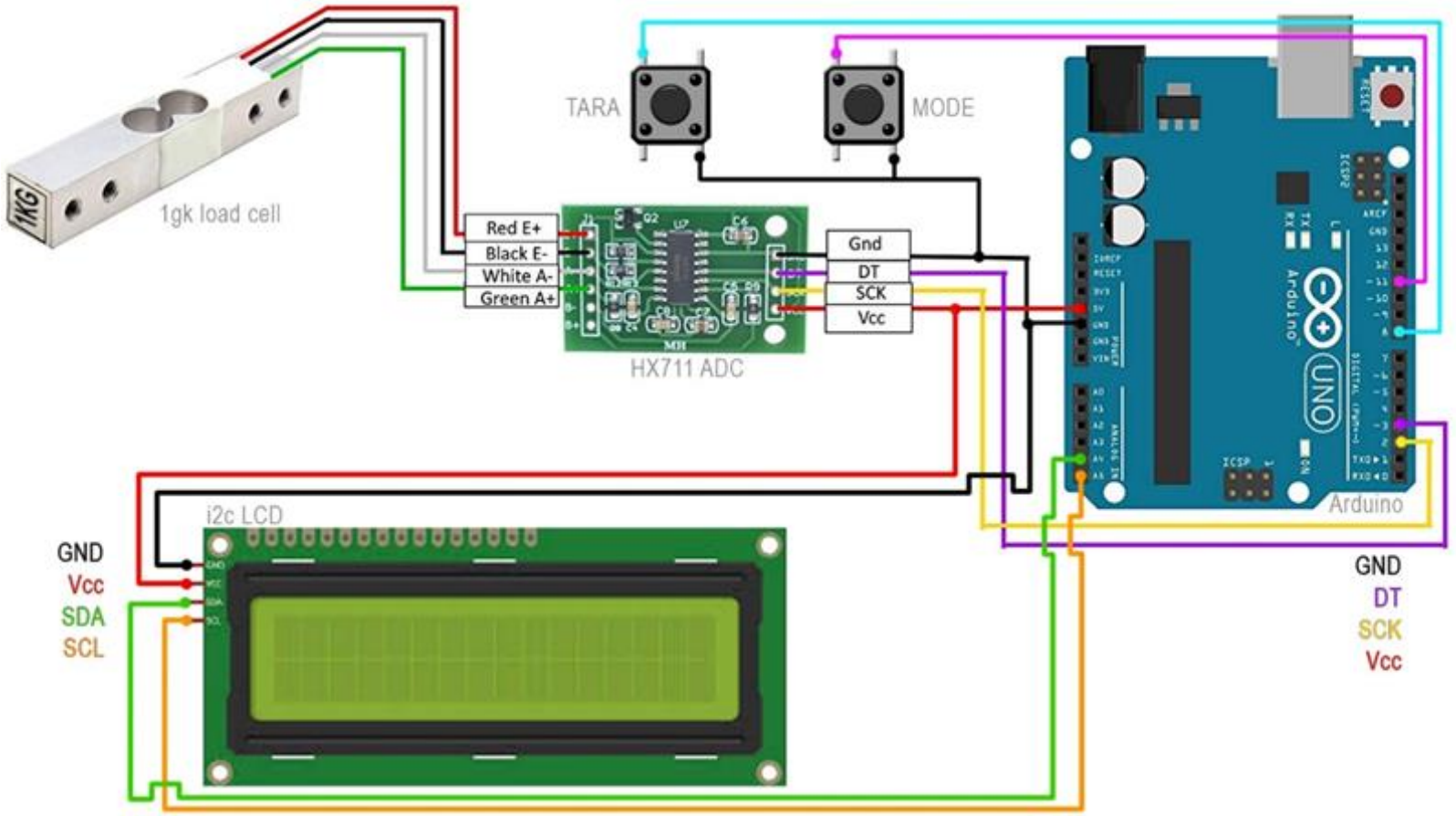
# Hardware Requirements

| | Equipment | Function |
|---|---|---|
|  | Arduino UNO R3 | Microcontroller board for prototype. |
|  | LCD Module Display 16x2 Blue | Monitor the mass of the solid and the room temperature. |
|  | IIC/I2C Serial Interface Adapter | Communication between Arduino and LCD using the $I^2C$ protocol. |
|  | HC-05 Bluetooth Module | Wireless communication between the Arduino and smartphone via Bluetooth technology. Allows to Monitor the mass & Temperature. |

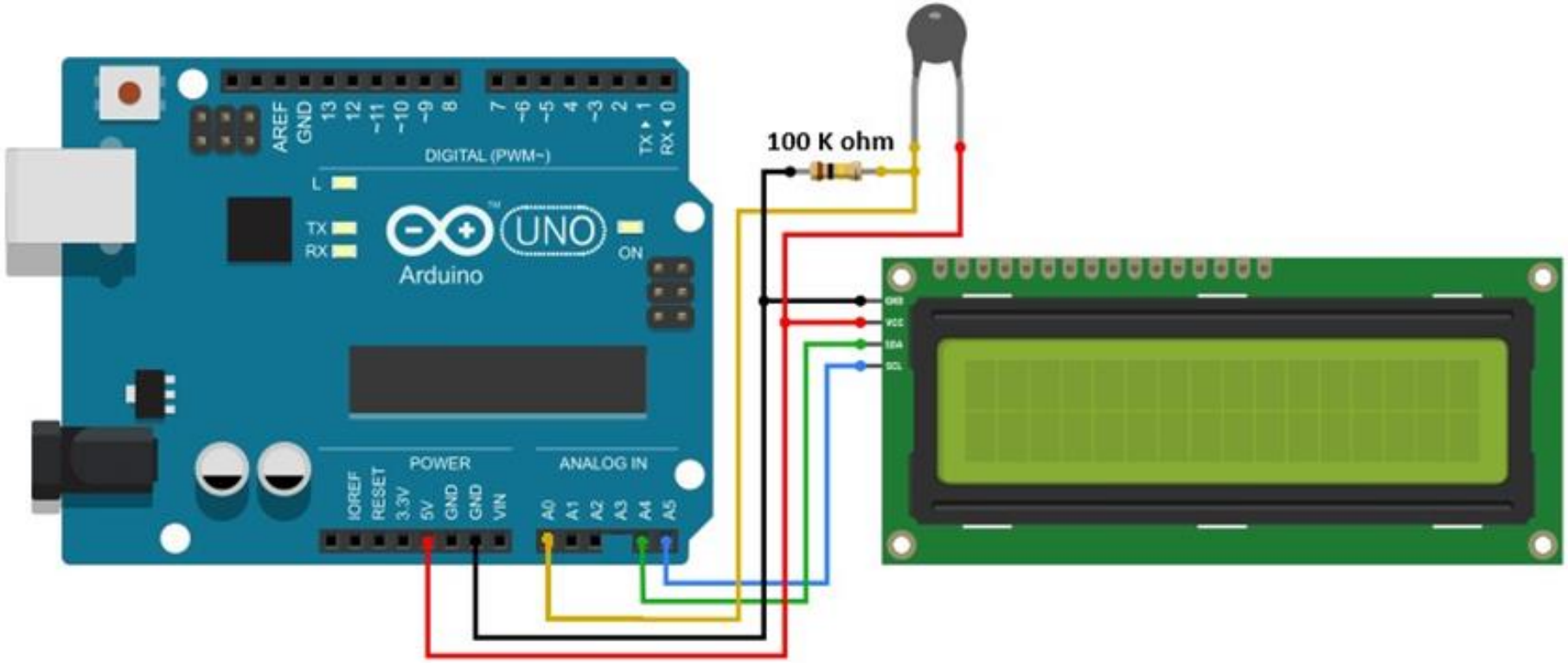
# Hardware Requirements

| | Equipment | Function |
|---|---|---|
|  | Digital Load Cell Weight Sensor<br>1KG | Measures Mass electronically with digital output. |
|  | HX711 Module | Analog-to-digital converter (ADC) and includes a built-in programmable gain amplifier. |
|  | Thermistor 100k NTC | Temperature measurements. |

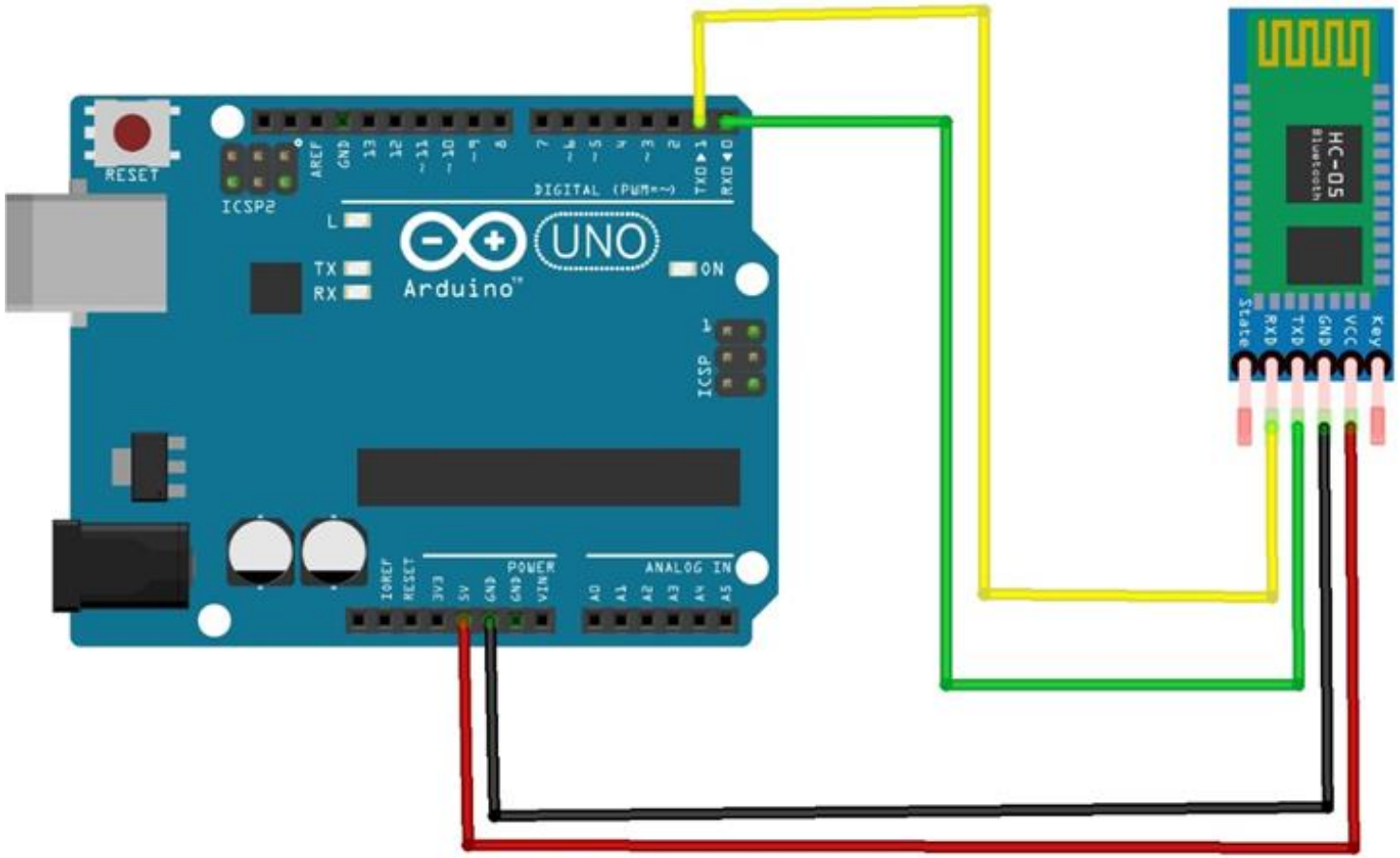
# Schematic Diagrams of Load Cell with LCD



# Schematic Diagrams of Thermistor with LCD



# Schematic Diagrams of Bluetooth Module



# Conclusion

- A wooden digital scale is constructed using load cell (4-brige strain gauge) that is used to measure weight of gold and also measure room temperature.
- The cost of the whole hardware was 30 JDs (without the wooden box).
- The schematic connection diagrams of the Load Cell and the LCD, Thermistor , Bluetooth module are shown, and the process is fully-explained in order to understand the operation of the proposed Digital Scale.

# Thanks for Listening