Welcome to my semester 4 university project! This project is my individual effort, and it comes with several important features:

* Main Power Control: There's a primary switch that you can use to turn the product on and off.
* Multimeter and Power Supply Modes: Another switch allows you to switch between two modes: multimeter and 5V power supply.
* User-Friendly Controls: You'll find two rotary switches designed for mode selection and adjusting the ohmmeter's scale.
* Readings Display: All the important readings are conveniently displayed on an LED screen.
* A black device with red and black wires

  Description automatically generatedRechargeable Battery: What makes this product special is its built-in rechargeable battery system. Say goodbye to constant battery replacements; this product includes an integrated charger mechanism.

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# **Specifications**

* This product is mainly a multimeter. Also this can be used as a 5V DC power supply.
* Multimeter has four modes.

1. Voltmeter
   * Measurement range = 0V to 50V
2. Ammeter
   1. Measurement range = 1mA to 2A
3. Ohmmeter
   1. Measurement range = 0 ohm to 1M ohm
   2. There are four resistance scales.
   3. 0 to 1K ohm
   4. 1K to 100K ohm
   5. 100K to 400K ohm
   6. 400K to 1M ohm
4. Continuity checker

* Probes do not have to change when it is working as an ammeter.
* This product has a charging feature.
* Once it is fully charged, it can be used 12 hours straight.
* There is a two way switch to change the mode between multimeter and power supply.
* weight = 500g
* Dimensions = 13cm 9cm 2.5cm

**What you can find here :**

* Component list
* Block Diagram
* Circuit diagrams
* Schematics Designs
* PCB Designs
* Enclosure Design

For more information, feel free to explore all the files and data in my repository. I've included comprehensive documentation, source code, and additional resources for a deeper dive into this project. Your feedback and contributions are highly appreciated.

**Component List**

* Atmega328p Microcontroller
* 3P4T Rotary Switches
* 16\*2 LCD Display
* Single Pole Double Throw Switch
* On-off Switch
* 1200mAh LiPo Battery
* TP4056 Charging module
* MT3608 Boost Converter

Block Diagram

A diagram of a computer component

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**A diagram of a circuit

Description automatically generatedCircuit Diagrams**

A diagram of a circuit

Description automatically generated

An electronic circuit board

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A diagram of a circuit

Description automatically generated

**Schematics Design**

**Sheet 1 of 3**

A screenshot of a computer

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**Sheet 2 of 3**

**A screenshot of a computer program

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A screenshot of a computer

Description automatically generated**Sheet 3 of 3**

**PCB Designs**

A red circuit board with blue lines and dots

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A green circuit board with grey and blue objects

Description automatically generated

**A green circuit board with black and red wires

Description automatically generated**

Enclosure Designs

A grey device with buttons and a screen

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A rectangular device with a caution label

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