MINI PROJECT

EEPROM WITH ARDUINO

Electrically Erasable Programmable

Read Only Memory

AGENDA

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2. OBJECTIVE
3. COMPONENTS USED
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5. METHODOLOGY
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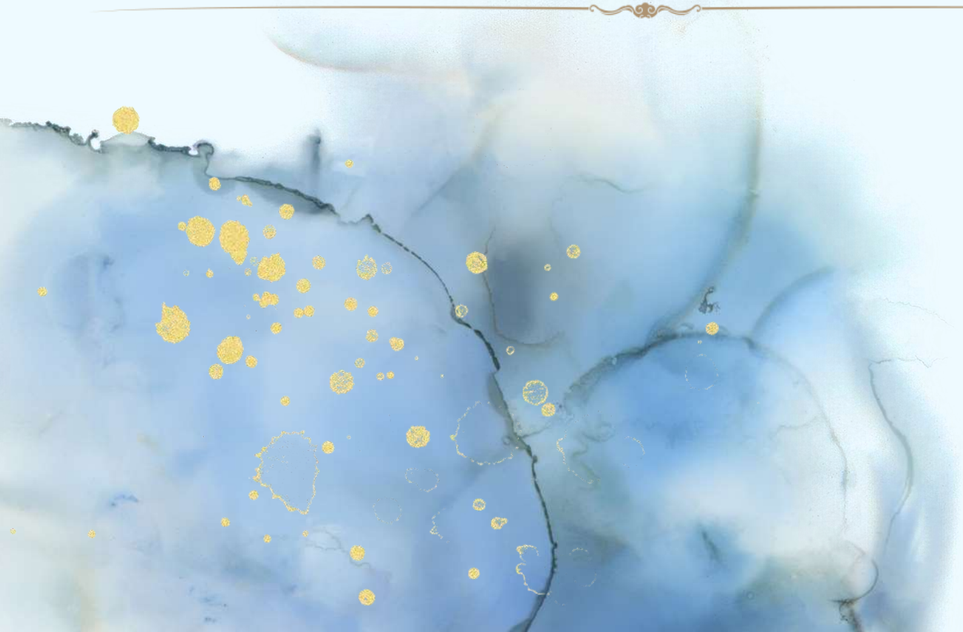
ABSTRACT

- .In our Arduino project, we leverage the EEPROM to display digital values using an ADC convertor (potentiometer).
- It provides persistent memory storage for user-defined settings and preferences.
- Write and read operations can be performed on the EEPROM to store and retrieve data as needed for our application.
- This seamless integration simplifies data management and ensures that essential calibration data and user configurations are retained, even when the power is disconnected, enhancing the overall versatility and reliability of our project.

OBJECTIVE

- The project aims to utilize the potentiometer as an intuitive input device, allowing users to interact with the system smoothly.
- By leveraging the ADC, we can obtain precise and accurate digital representations of the analog readings, enabling further processing and control within the Arduino.
- Storing this data in the EEPROM ensures data persistence, allowing critical settings and preferences to be retained even after power cycles.
- With a focus on simplicity and modularity, the project will provide an abstraction layer, streamlining development and encouraging broader application of this analog-to-digital conversion and EEPROM usage in Arduino projects.

COMPONENTS USED



1. Arduino UNO
2. AT24LC256 EEPROM module
3. Potentiometer
4. Servo motor
5. Power supply
6. Bread Board
7. Jumper wires

COMPONENTS USED

AT24LC256 EEPROM Module: The AT24LC256 EEPROM module is used to store data that needs to be retained even when the power is turned off, such as configuration settings or user data. You can interface the EEPROM module with a microcontroller or other digital devices through I2C or SPI communication protocols. Write and read operations can be performed on the EEPROM to store and retrieve data as needed for several applications.

Potentiometer (10K Linear Taper Potentiometer):

A potentiometer is used as an input device to set or adjust parameters related to the operation of our project's EEPROM or other components.

For instance, we can connect the potentiometer to an analog input pin on a microcontroller. The potentiometer's knob can be used to select memory addresses or set values like write delays, thresholds, or other parameters.

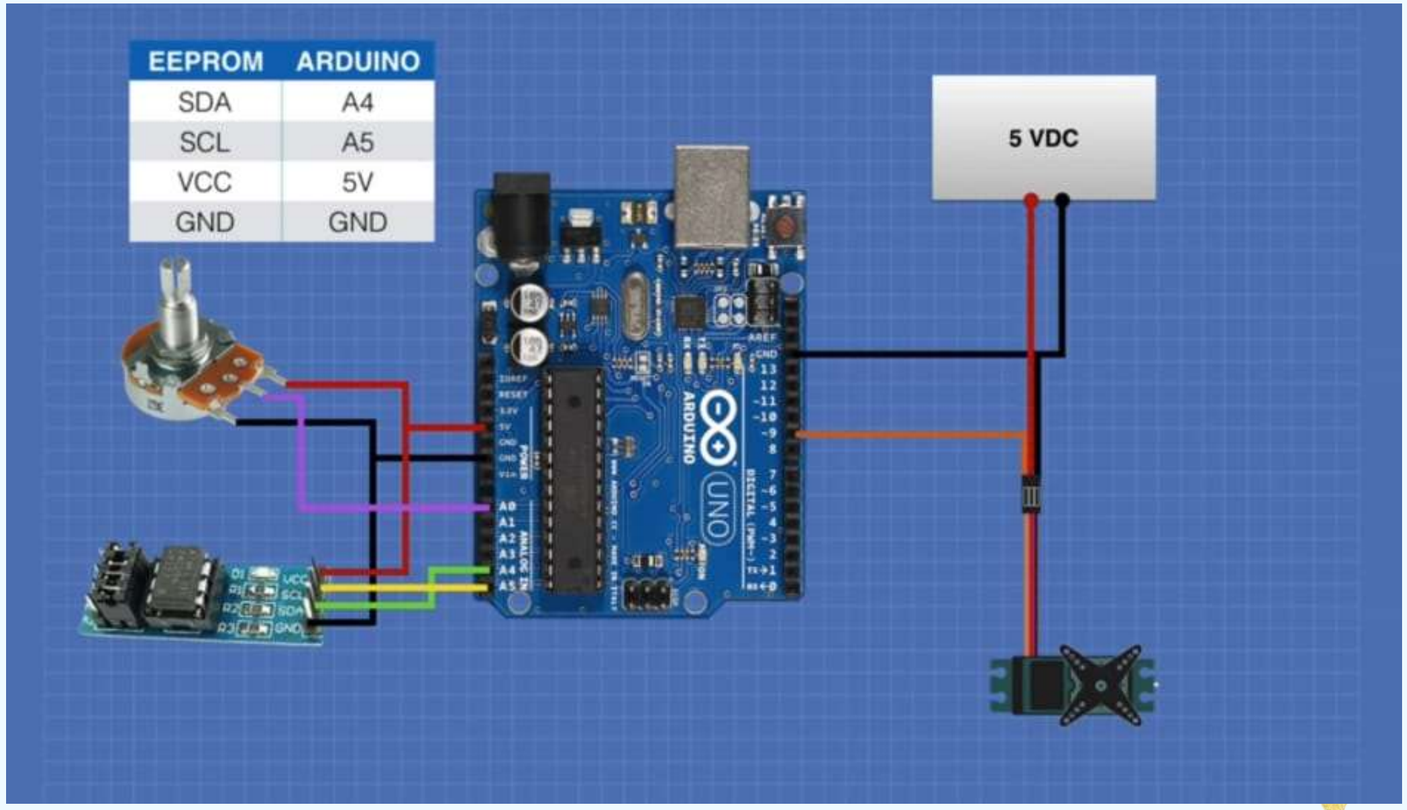
COMPONENTS USED

Servo Motor (SG90): A servo motor can be employed to physically control or interact with elements in your project. You can use the servo motor to create a mechanism that writes data to or reads data from the EEPROM module. For example, the servo arm can press buttons or switches to trigger specific EEPROM operations.

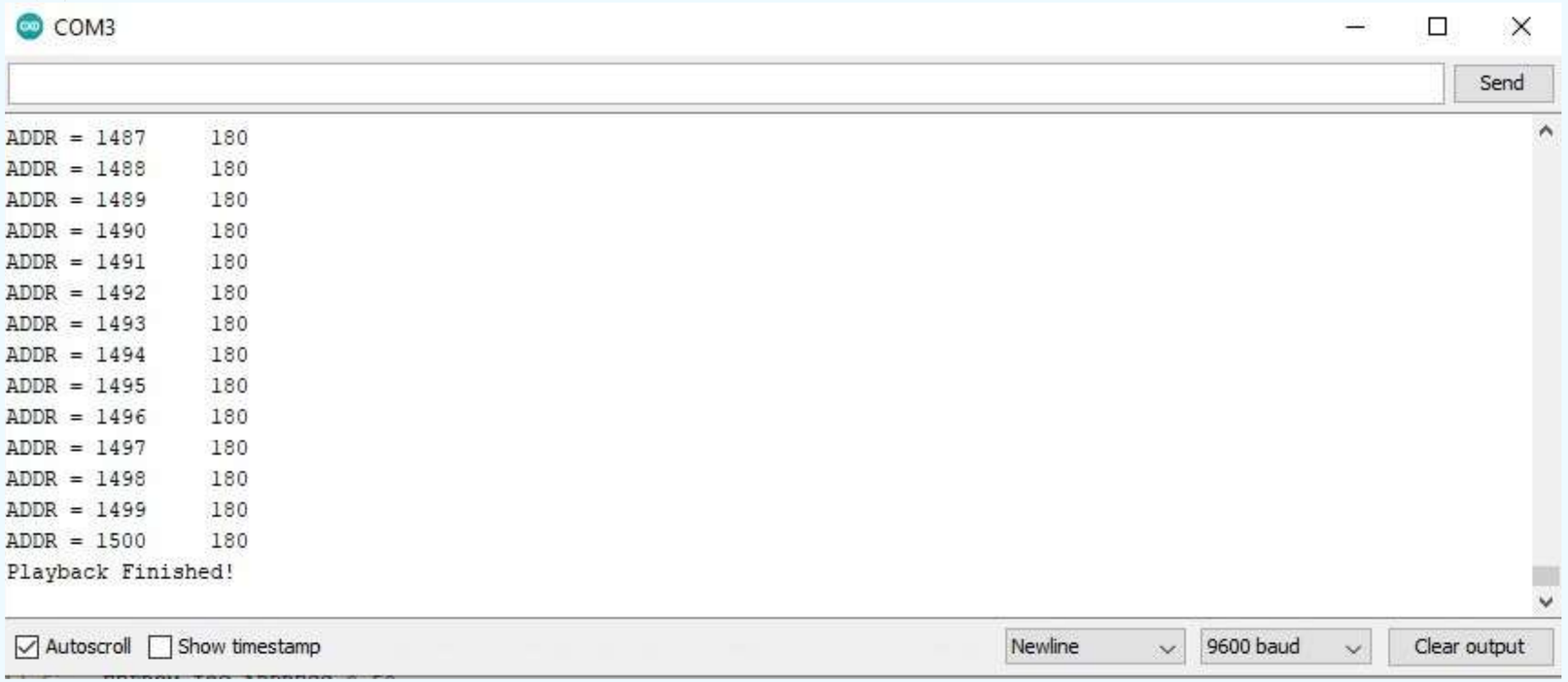
Power Supply (5V): The 5V power supply is essential to power the EEPROM module, servo motor, and other components in your circuit. Ensure that the power supply provides a stable voltage to prevent data corruption or erratic behavior in the EEPROM module.

Jumper Wires (Male to Male and Male to Female): Jumper wires are used to make electrical connections between the components.Male-to-male jumper wires are typically used to connect pins on components or between components on a breadboard.Male-to-female jumper wires allow you to connect components to a breadboard or other connectors.

CIRCUIT DIAGRAM

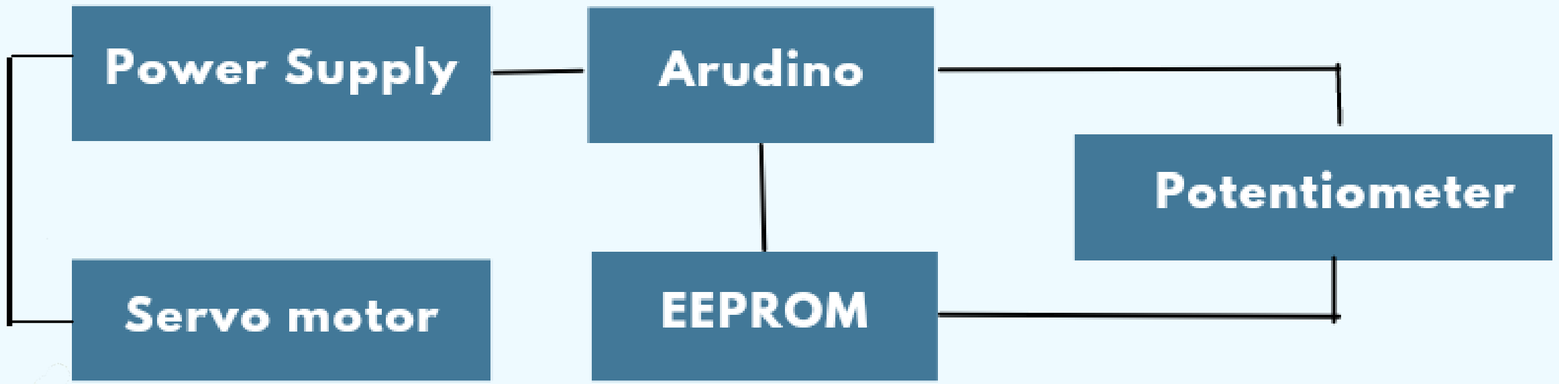


OUTPUT


COM3
Send
ADDR = 1487 180
ADDR = 1488 180
ADDR = 1489 180
ADDR = 1490 180
ADDR = 1491 180
ADDR = 1492 180
ADDR = 1493 180
ADDR = 1494 180
ADDR = 1495 180
ADDR = 1496 180
ADDR = 1497 180
ADDR = 1498 180
ADDR = 1499 180
ADDR = 1500 180
Playback Finished!
Autoscroll
Show timestamp
Newline
9600 baud
Clear output

BLOCK DIAGRAM

EEPROM USING ARDUINO



METHODOLOGY

STEP 1: Connect the components as per the circuit diagram.

STEP 2: Using Arduino IDE implement the entire code. Verify the code completely and compile it. Once compiled, it's time to upload the code it Arduino board.

STEP 3: After uploading the code open serial monitor and set the **Baud rate as 9600** and select **Autoscroll.**

STEP 4: Now the output will be displayed for each adjustment given in the potentiometer.

ADVANTAGES

ELECTRIC ERASURE

REPROGRAMMABILITY

SELECTIVE ERASURE

NO UV EXPOSURE

LOWER POWER CONSUMPTION

HIGHER DENSITY

FASTER WRITE SPEED

DATA INTEGRATION

FUTURE ENHANCEMENT

Increased EEPROM size

Using external EEPROM chip with **higher storage capacity** to store more data.

Real Time Clock integration

Adding RTC module to **timestamp data** written to EEPROM.

Wireless connectivity

To interact with EEPROM and **facilitate data transfer** and updates wirelessly.

Faster Read and Write Speeds

Improving the read and write speeds of EEPROMs would make them more competitive with other memory technologies.

REFERENCE

- https://youtu.be/ShqvATqXA7g?si=W-G3T_fGFt0jYxAN
- http://www.wikipedia.com
- https://www.electronicsforu.com/
- https://www.electronicsandyou.com/

THANK YOU