UNITED INTERNATIONAL UNIVERSITY

Lab Report 1

Course Name: Microprocessors and Microcontrollers Laboratory

Course Code: CSE 4326

Section: D

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Experiment no. 2

Password Verification with Serial Monitor (Virtual Terminal)

Objective:

When the predefined password is written in serial monitor, it will print “Thank you for logging in”. Otherwise, it will print “No access”.

Equipment:

- Arduino Uno R3
- Arduino IDE (Compiler)
- Proteus (Simulator)

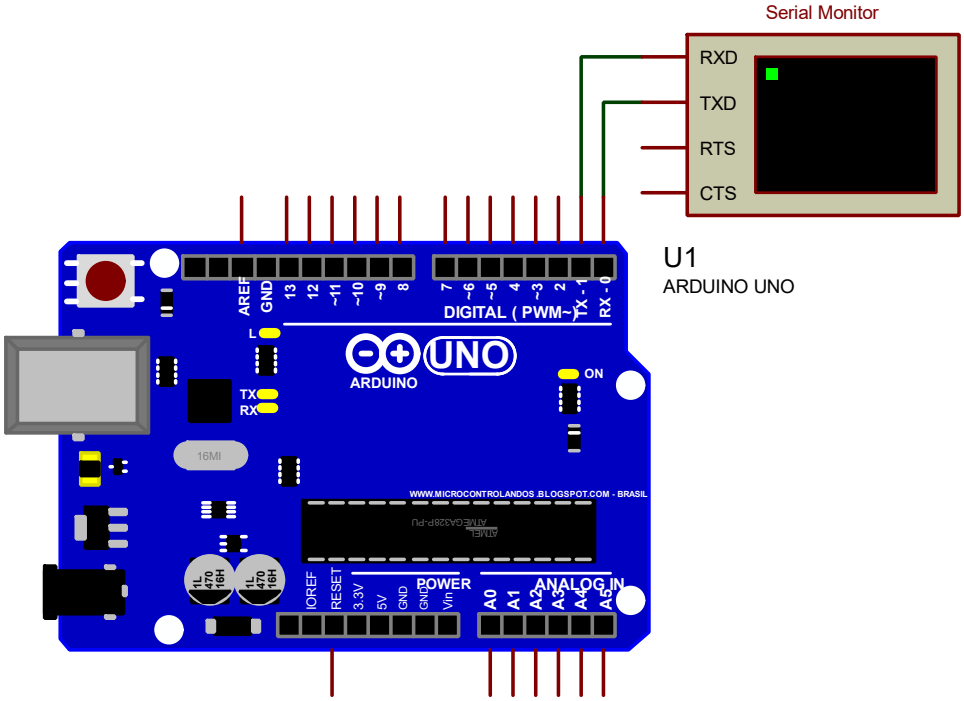
Introduction:

This experiment demonstrates how to implement a password check functionality using an Arduino board and simulate it in Proteus using the Virtual Terminal component. The experiment showcases the process of inputting a password through the Virtual Terminal and verifying it against a predefined password in the Arduino code. The experiment aims to highlight the use of serial communication and password authentication in Arduino projects, providing a practical understanding of password-based access control systems.

Components and its Functions:

1. **Arduino Uno R3:** This is the microcontroller board that will execute the code and facilitates serial communication between the computer and the Virtual Terminal.
2. **Serial Monitor (Virtual Terminal):** Simulates the functionality of the Serial Monitor in Proteus. Provides a graphical interface for sending and receiving data to and from the Arduino board and displays the output messages from the Arduino code during the password verification process.

Circuit Diagram:



Output Display:

If the entered password matches the predefined password, the Arduino code sends the message "Thank you for logging in" via the Serial Monitor (Virtual Terminal) and if the entered password does not match the predefined password, the code sends the message "No access" via the Serial Monitor (Virtual Terminal).

Arduino Code:

```
const String password = "samir";

void setup() {
  Serial.begin(9600);
}

void loop() {
  if (Serial.available()) {
    String input = Serial.readStringUntil('\n');

    if (input == password) {
      Serial.println("Thank you for logging in");
    } else {
      Serial.println("No access");
    }
  }
}
```