EE351 Module 00
Introduction to Arduino-UNO Programming

Goal of the module: The goal of this module is to learn the use of Arduino UNO pins as digital output and input pins. In order to start writing codes for Arduino you will first use the Arduino simulator provided in TinkerCad (Link in [1])).

The following objectives need to be implemented on TinkerCad.

Objective I: LED Blinking and Basic Familiarization [2]

1. Simulate a basic LED blinking circuit using the TinkerCad Arduino interface to get comfortable with:

   - Writing simple Arduino code

   - Using digital output pins

   - Configuring simulation elements like resistors, LEDs, and breadboards

2. Getting started with TinkerCad:

   - Sign up for a student account on TinkerCad

   - Navigate to: Circuits → Create New Circuit

   - Select components such as Arduino UNO, LED, resistor, and wires

   - Assemble the circuit and write/upload your code

Objective II: Switch-Controlled LED Logic [3]

1. Implement a simple interaction between a push button (switch) and an LED using Arduino in TinkerCad. The behavior should follow the rules below:

   (a) The LED should blink continuously (with 1 second ON, 1 second OFF) when the switch is **not pressed**.

   (b) When the switch is **pressed**, the LED should stop blinking and remain **ON** steadily.

   (c) As soon as the switch is released, the LED should return to the blinking mode.

2. This task will help you understand:

   - How to read digital input from a switch

   - How to control digital output to an LED

   - How to use conditional ('if'/'else') logic and timing ('delay()') in Arduino code

3. **Steps**:

   - Create a new circuit in TinkerCad using Arduino UNO, one LED, one switch, a resistor (for the LED), and a pull-down resistor (for the switch).

   - Connect the switch to a digital input pin and the LED to a digital output pin.

   - Write code that continuously checks the switch state and updates the LED behavior accordingly.

   <u>**Report Guidelines:**</u> There is no report for this module.

References

[1] https://www.tinkercad.com/

[2] https://www.youtube.com/watch?v=yyG0koj9nNY

[3] https://www.youtube.com/watch?v=PC15jBx2UxI

OBSERVATION SHEET

This sheet needs to be attached to the report.

1. Demonstrate Objective-I.

TA Signature with Date:

2. Demonstrate Objective-II.

TA Signature with Date: