Motivation of the lab

The student is expected to learn,

- Connection of input/output devices with the Arduino board.
- Programming using Arduino functions

Hardware to be used

Arduino board, LED, 330 Ω, 2 kΩ resistors, light dependent resistor (LDR), pushbutton.

Resources to be used

Use Arduino resources available on the Internet and those given in Moodle.

Experiments – Total (3):

1. Connect an external LED to the Arduino digital I/O as an output using sourcing and sinking type configuration. For the LED to glow in the sourcing type connection the digital I/O pin has to be logic 1. For the LED to glow in the sinking type connection the digital I/O pin has to be logic 0.

   Make sure there is a 330 Ω resistor in between the pin and the LED. Draw both the connections in your lab notebook and also write the code.

2. Connect an LDR in series with a 2 kΩ resistor. Tap off the center point and connect it to the analog input port 0. View the value of the analog input using serial monitor function of Arduino.

   Draw the connection in your lab notebook and write the code / serial monitor output.
3. Write a code to imitate a real time clock in Arduino. The value of the clock in seconds : minutes : hours (24 hours) should be displayed on the PC using the serial monitor function. The code should turn on a LED for 5 seconds, when a certain pre-set time matches the current time.

After testing the code, write it in your lab notebook. Also mention the program and data memory utilization.