

Lab Report: 1

EXPERIMENT-1 (Familiarisation of digital kit)

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Objective:

The Objective of this lab is to familiarisation with Digital Test Kit and Binary Logic Levels. This laboratory session will be devoted to getting conversant with the features of the Digital Test Kit to be used for this course, and using this Test Kit to understand the implications of binary logic levels

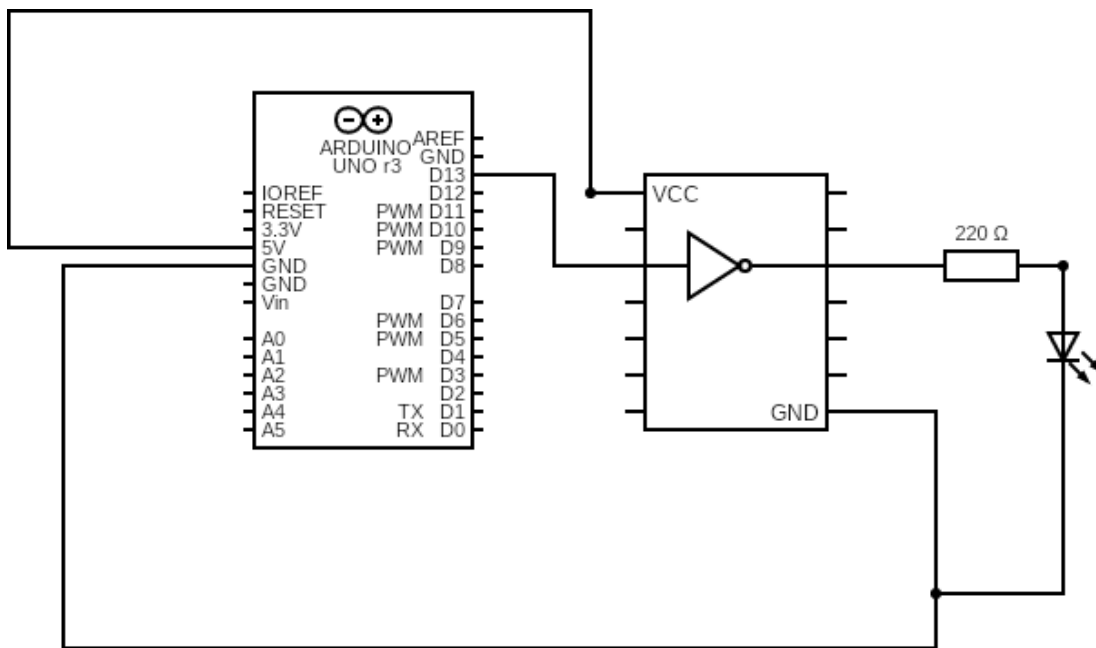
Electronic components used:

1. Digital kit
2. Connecting wires
3. 7404 IC (NOT gate)

Procedure:

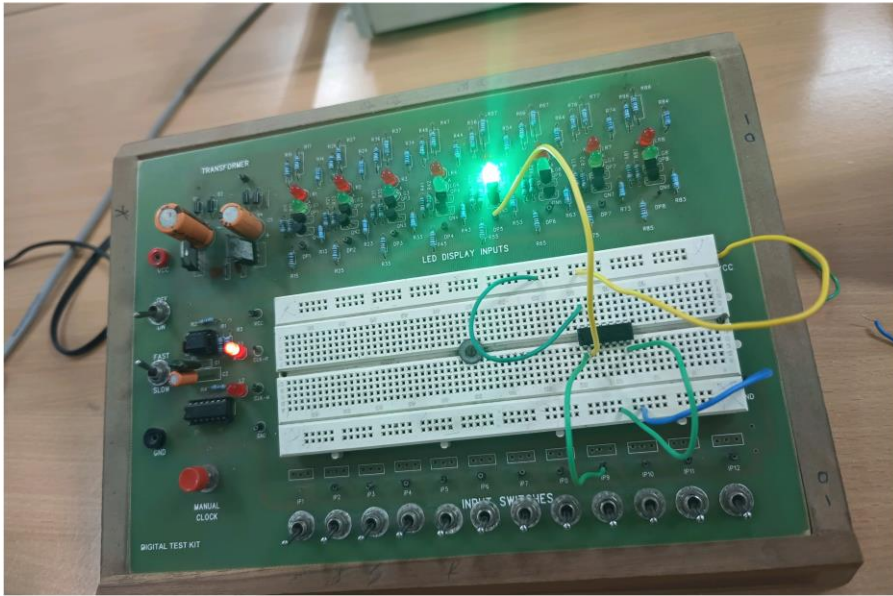
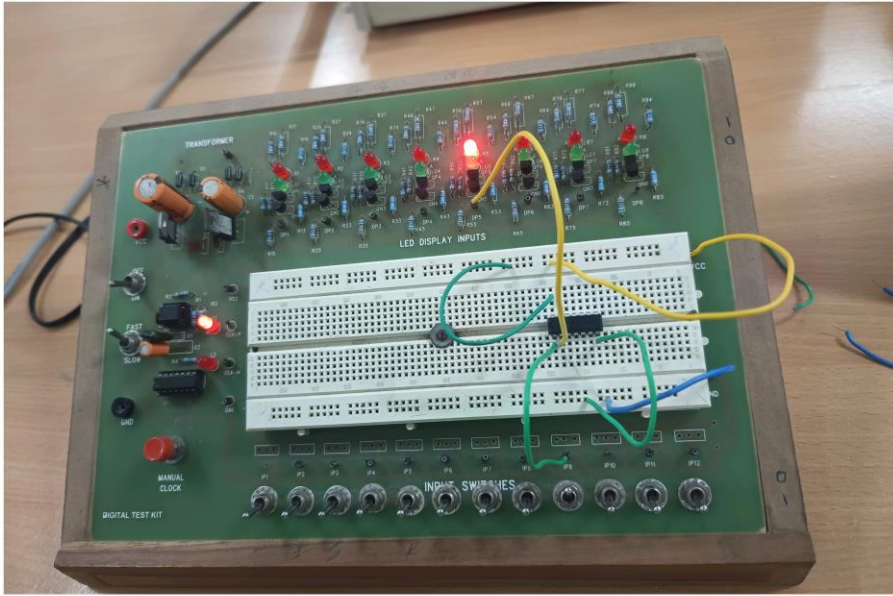
- Connect the VCC and GND pins of the IC to the VCC and GND lines on the top and the bottom of the breadboard, using RED and BLACK wires respectively.
- Connect the input pin of any one gate in the IC to one of the 1A-6A input switches, and the corresponding output pin of the IC to one of the DP1-DP8 display points provided in the Test Kit.
- Next place the resistor and bulb as per the above reference circuit on the breadboard.
- Connect the negative terminal of led to the ground of IC.
- No code is used in this experiment.

The reference circuit:



Conclusion:

By this experiment came to know how the NOT gate works in real life. It helped me understanding the basics of circuit building and made me familiar with the connections. I got a good idea regarding the input and output signals.



Experiment-2

Printing “Hello World” using Arduino UNO

Objective:

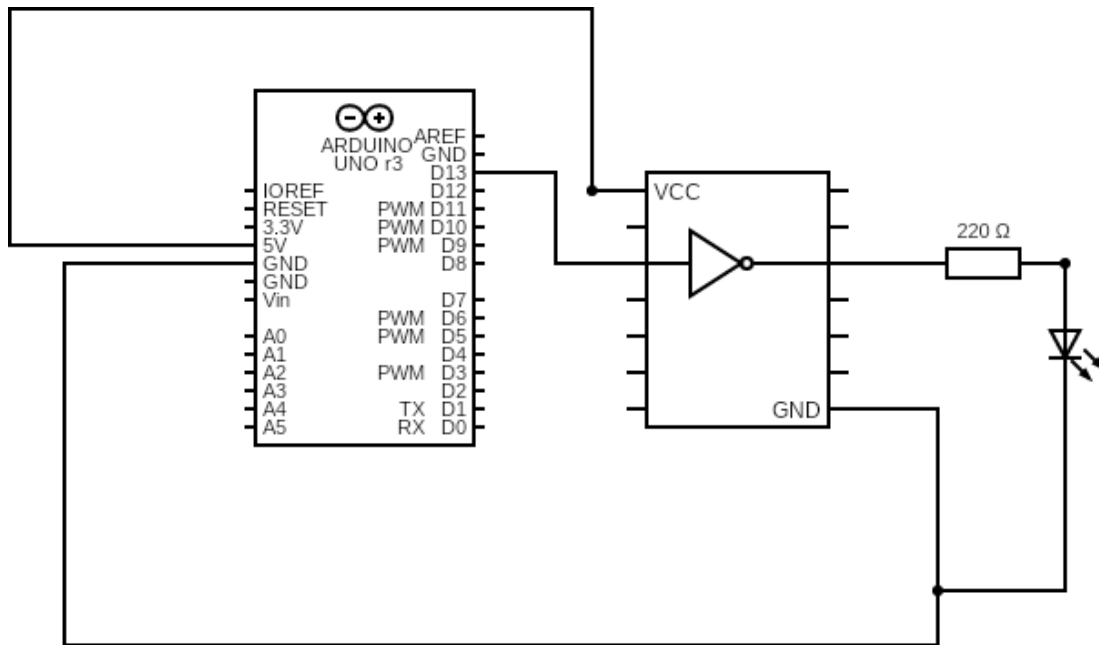
The Objective of this experiment is to learn how to write and compile C code for ATmega328P in Arduino ISP. In addition, you will dump this file into the microcontroller, run the program and observe its output.

The experiment is to output “Hello World” on the serial monitor if the output of the NOT gate is 1 and nothing if the NOT gate output is 0.

Electronic components used:

1. Arduino UNO
2. Connecting wires
3. 7404 IC (NOT gate)
4. LED
5. USB-A to USB-B connecting cable
6. Digital Kit
7. Laptop installed with Arduino IDE

The reference circuit:



Procedure:

- Connect the VCC and GND pins of the IC to the VCC and GND of Arduino on the top and the bottom of the breadboard, using RED and BLACK wires respectively.
- Connect the input(1A) of IC with the D13 (You may choose any pin) next connect the output(1Y) to the positive terminal of LED
- Next place the resistor and LED as per the above reference circuit on the breadboard.
- Connect the negative terminal of led to the ground of IC.
- Open Arduino IDE and write the code for "Hello World" and print it in a loop.
- Then compile code and check for any errors.
- Connect the Arduino to the laptop by using USB-A to USB-B connecting cable and select the Arduino UNO.
- Now upload the code to the Microcontroller and check serial monitor for output.

Conclusion:

By this experiment came to know how the Arduino IDE works and how to write and compile the code. It helped in me understanding the microcontrollers.

[Link for Tinkercad simulation:](#)

