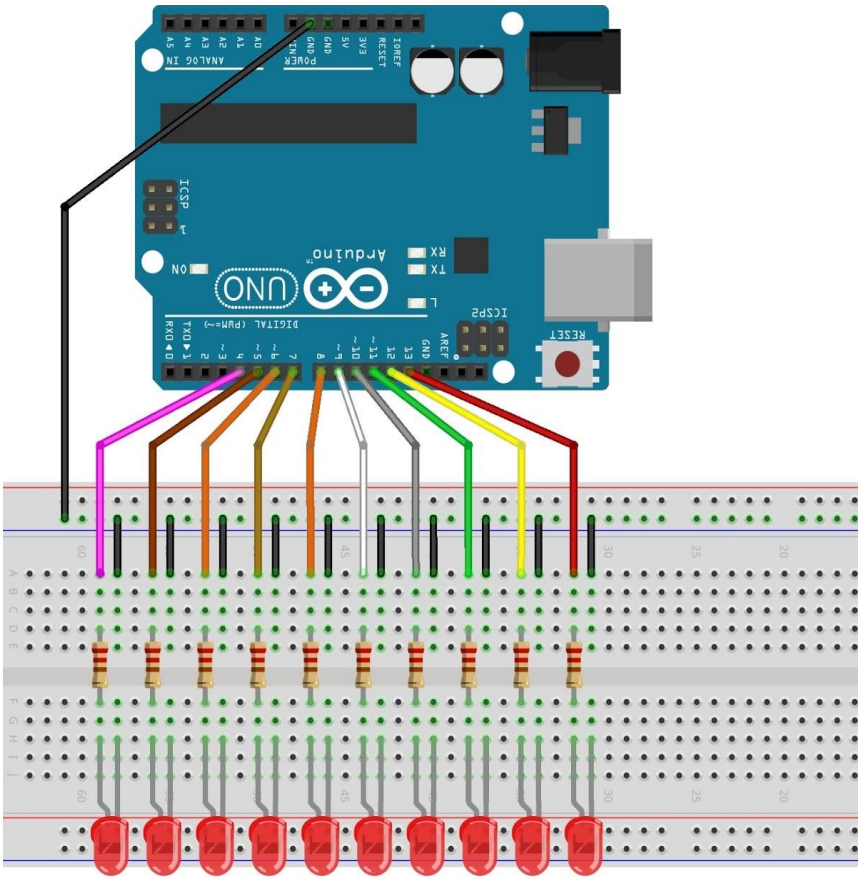

DESIGN AN LED CHASER

EXPERMENT 2

ABSTRACT

The LEDs lights one by one for a period of 1 second and the cycle repeats giving the running light appearance.

Ritul Singh

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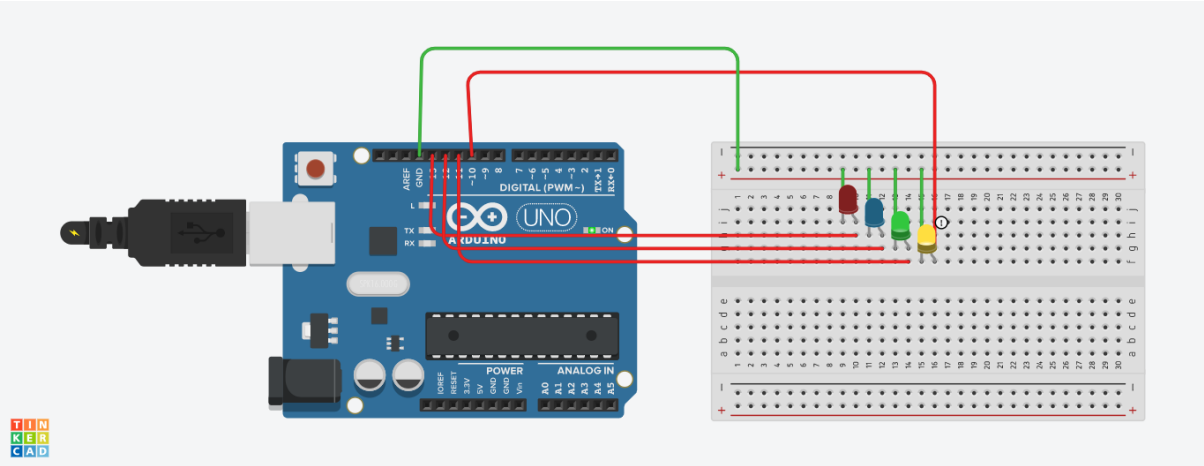
Stream: CSE(G&G) GROUP: A

University: CHANDIGARH UNIVERSITY

Experiment:-2 LED CHASER

Circuit diagram:



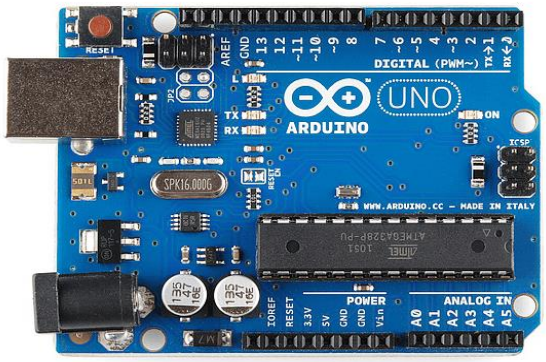
Theory:

CONCEPT USED:

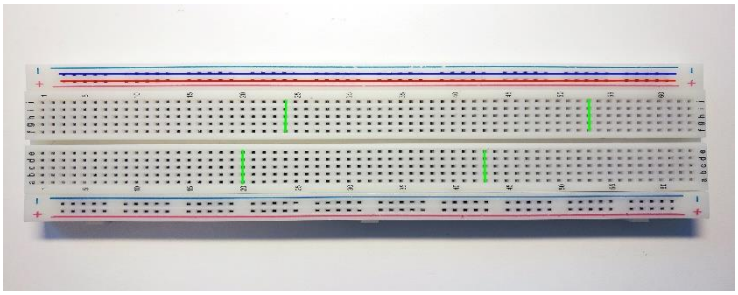
I. By using Kirchhoff's Law.
II. Combination of LEDs in parallel circuit.
III. Algorithm to obtain chaser effect.
IV. How to use multiple digital pins of Arduino Uno at the same time.
V. By using Kirchhoff's Current Law.
VI. Logic code for Arduino UNO, using Loop Statement.

Hardware Required

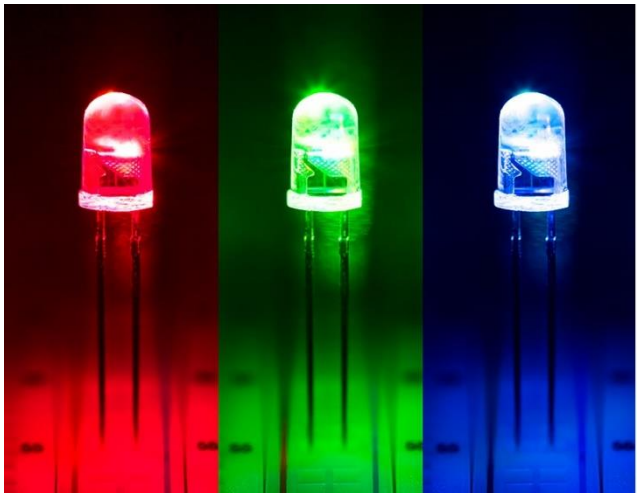
I. Arduino



II. Breadboard



III. Light Emitting Diode (LED)



LEARNING:

I. The Arduino board has ~ sign in Digital pin side which is also known as Pulse Width Modulation (PWM).
II. How to control Arduino and its coding.
III. Interface multiple LEDs with Arduino Uno board and breadboard.
IV. We learnt about LEDs parallel combination.
V. We learnt about the loop in Arduino Uno.
VI. Different LED patterns.

OBSERVATIONS:

I. The Arduino board can provide a supply of 5V to the chaser circuit.
II. We observe when we move delay one line up or down it change the whole pattern of the chaser.
III. If we don't use delay in our code at specific points, we get a continues pattern.
IV. Very little modification can create a new unexpected pattern.

PROBLEMS & TROUBLESHOOTING:

I. I encountered the problem in my code wasn't working as expected. So, I re-examined the code and corrected.
II. I got confused while using the void loop for two times. The solution is that we can use "for" loop in the function of void loop to overcome the problem.
III. First the led did not complete loop the last led did not turn ON with the first one. So, I applied two if statements to overcome this problem.
IV. To select the right port and type of Arduino.
V. To check the connections according to the codes.
VI. To check the flow of current in the circuit.

PRECAUTIONS:

I. The connections on the Arduino board must coincide with the codes written on the software.
II. During the writing of the codes, the insertion of delay should not be forgotten.
III. The connections on the Arduino board must coincide with the codes written on the software.
IV. Do not connect Arduino till the circuit is complete.

V. The two pins of the LED should be connected at their appropriate point i.e., the anode should be connected to the positive pin and the cathode should be connected to the ground.

LEARNING OUTCOMES:

I. LEDs glows in a chasing pattern.
II. Learnt to make circuits using breadboard, Arduino board and other equipment.
III. I have learnt that what are the elements of Arduino board and how they function.
IV. I have learnt how a led chaser works in real-time.
V. How to use multiple pins at the same time to give output.

----------END----------