Circuit Diagram:



Theory:

Concept Used:

1) Logic code for Arduino UNO, using Loop statement.

2) way to use resistance in a circuit.

3) concept of how touse P-N junction diode.

4) How to work with Breadboard.

Learning & Observations:

**Learning:**

1)I learnt to use Arduino Board and how to code it for led chaser and patterns

2)How to work with cuircts on breadboard.

3)The Arduino board has ~ sign in Digital pin side which is also known as Pulse Width Modulation(PWM).

These pins help’s in getting analog results with digital means.

4)Arduino board has Digital pins and Analog pins.

Digital pin provides Input as well as Output, but Analog pin provides input only.

5)Since the LED can bear a limited supply of voltage so we have used resistance in series

It can not work with 5V.

6. Digital Pin provides 5V Power supply to the circuit.

**Observations:**

1)The Arduino board can provide a supply of 5V to the chaser circuit.

2)I connected the ‘p’ terminal of the p-n junction diodes to the Digital pins 5,6,7,8 in combination with the resistance, and ‘n’ terminals with the ground(GND).

3)After uploading the code on the Arduino software, the LEDs started blinking and light start moving in consecutive such that 2 lights move together and then one turns off another led which is ahead of the led turns onn this take place in interval of 200ms.

Problems and Troubleshooting:

1)The circuit on the bread board is not relevant so the circuit will not work.

I have fixed it by recognizing the circuit properly and again make the circuit on the board.

2)I got confused while using the void loop 2 times. The solution is that we can use ‘for’ loop in the function of void loop to overcome this problem.

3)First the led did not complete loop the last led did not turn onn with the first one.So I applied two if statements to overcome this problem.

Precaution:

1)Good handling of the device.

2)In the IDE of Arduino the instructions should be given only in void loop section.

3)During the writing of the codes, the insertion of delay should not be forgotten.

4)The connections on the Arduino board must coincide with the codes written on the software.

Learning and Outcomes:

1)learnt to make circuits using breadboard, Arduino board and other equipment.

2)how Arduino can be used in various conditions.

3)I have learnt that what are the elements of Arduino board and how they function.

4)I have learnt how a led chaser works in realtime.