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IoT Fundamentals – ECE3501

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Digital Assignment – 1
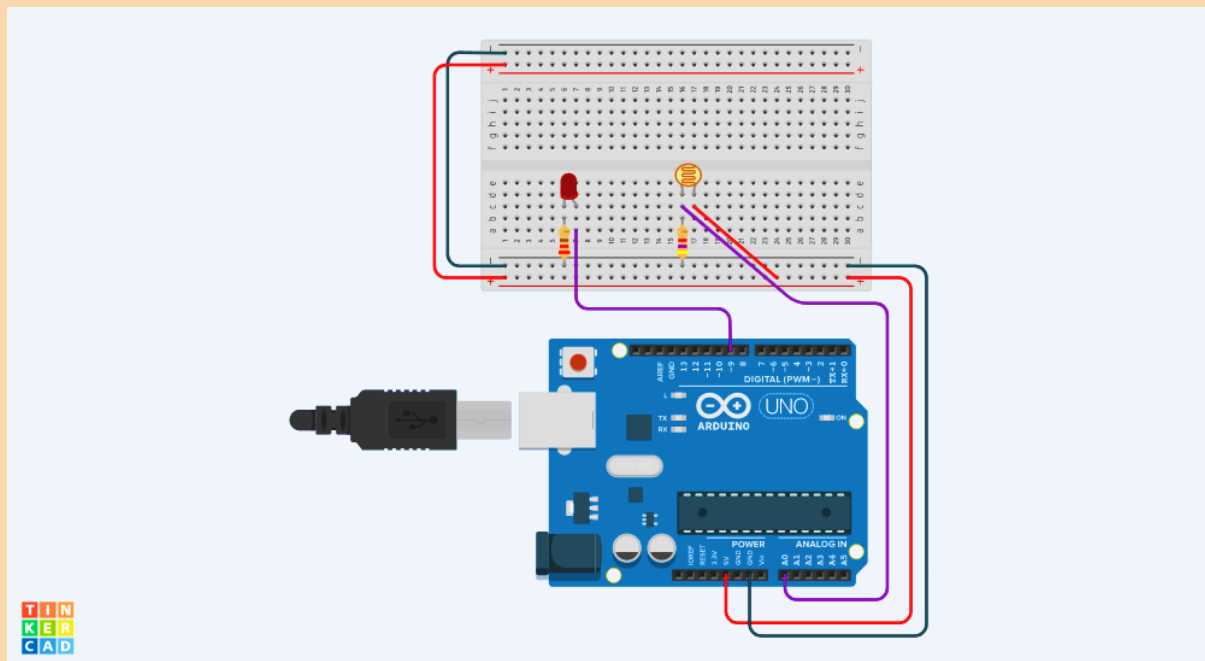To: Prof. Suresh Chavhan

TASK - I

Aim

To design a circuit using Arduino for detecting the intensity of light using a photo sensor and plot it with respect to time

Tools Required

Tinkercad – for simulating the connection and coding of the Arduino circuit

ThingSpeak – for plotting the graph
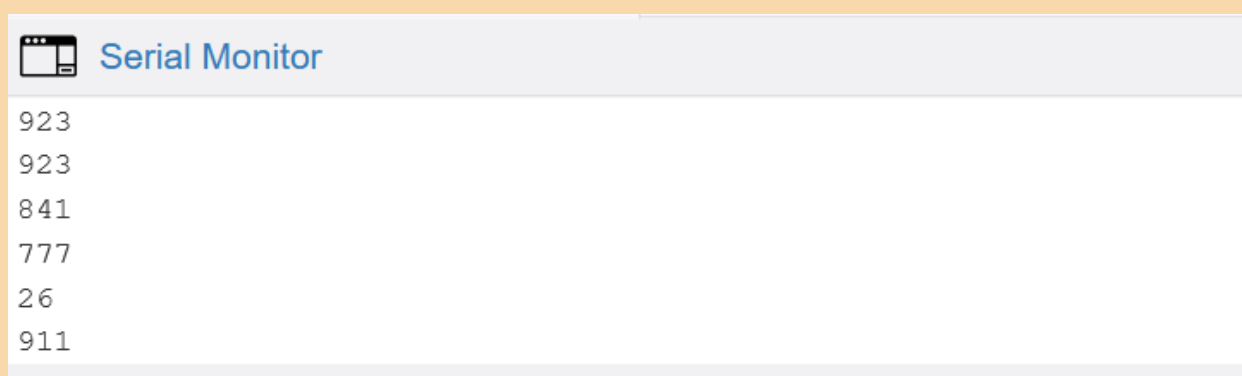
Circuit Diagram

Flow diagram

*Wait seconds was changed from 0.1 to 1 seconds (precision was reduced) for easier representation of plotting

Output from Tinkercad

Serial Monitor

```
923
923
841
777
26
911
```

Code

```
int S = 0;
void setup()
{
    pinMode(A0, INPUT);
    Serial.begin(9600);
    pinMode(9, OUTPUT);
}


void loop()
{
    // Read the value from Sensor
    S = analogRead(A0);
    // Print the value from Sensor
    Serial.println(S);
    // Map reading to LED
    analogWrite(9, map(S, 0, 1023, 0, 255));
    delay(1000);
    // Wait for 1000 millisecond(s)
}
```
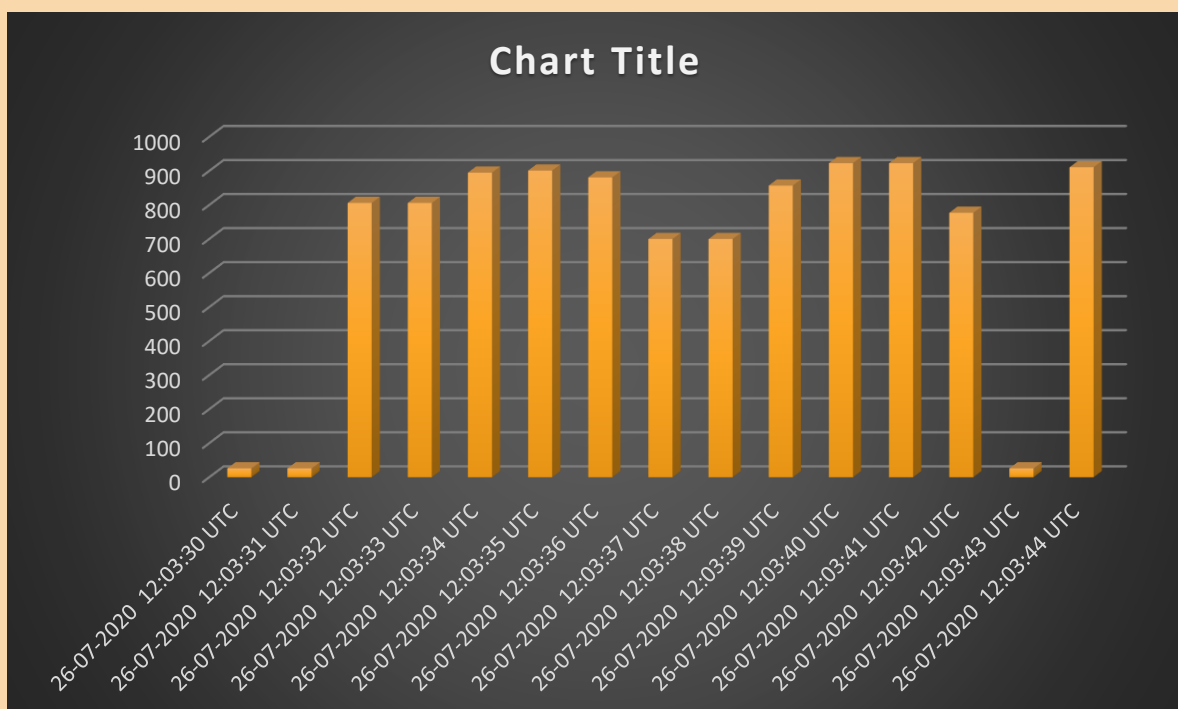
Observations

datetime	field1	latitude	longitude	elevation	status
26-07-2020 12:03:30 UTC	26	-89	155.6	22	Awake
26-07-2020 12:03:31 UTC	26	0.5	-170	23	Awake
26-07-2020 12:03:32 UTC	806	90	0	24	Awake
26-07-2020 12:03:33 UTC	806	70	10	25	Awake
26-07-2020 12:03:34 UTC	895	80	20	26	Awake
26-07-2020 12:03:35 UTC	901	40	30	27	Awake
26-07-2020 12:03:36 UTC	881	50	40	28	Awake
26-07-2020 12:03:37 UTC	700	60	50	29	Awake
26-07-2020 12:03:38 UTC	700	20	60	30	Awake
26-07-2020 12:03:39 UTC	857	30	70	31	Awake
26-07-2020 12:03:40 UTC	923	10	80	32	Awake
26-07-2020 12:03:41 UTC	923	30	90	33	Awake
26-07-2020 12:03:42 UTC	777	50	100	34	Awake
26-07-2020 12:03:43 UTC	26	60	110	35	Awake
26-07-2020 12:03:44 UTC	911	70	120	36	Awake

*Only field1 contains observed values, other values are random and do not affect the graph

Output from Excel

Output from ThingSpeak

Field 1 Chart

Task – 1

Light Intensity

500

0
17:33:30   17:33:35   17:33:40

Date
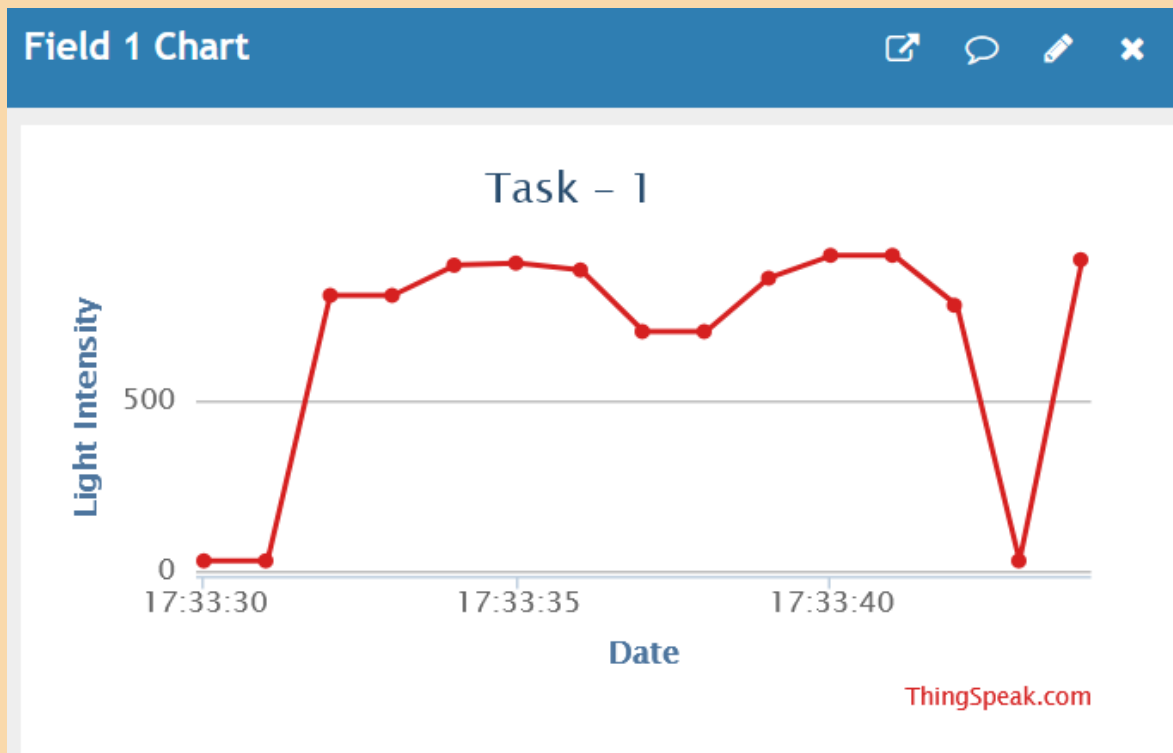
ThingSpeak.com

Conclusion

Therefore, by using Tinkercad, we simulated a circuit for measuring the light intensity and by recording the output in a csv file, we can plot it using ThingSpeak.