ROLL NO:CE045

ID NO:20CEUON126

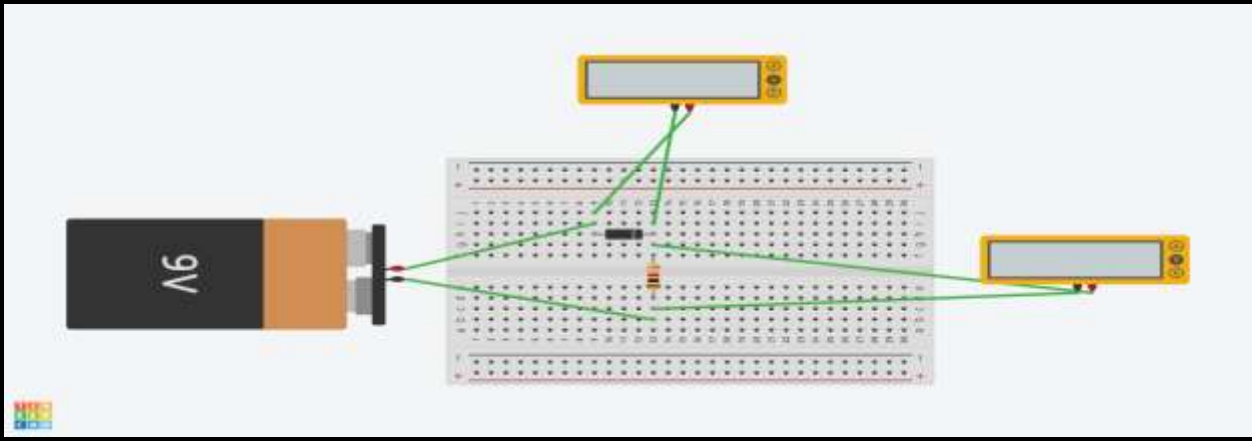
NAME:Jash Shah

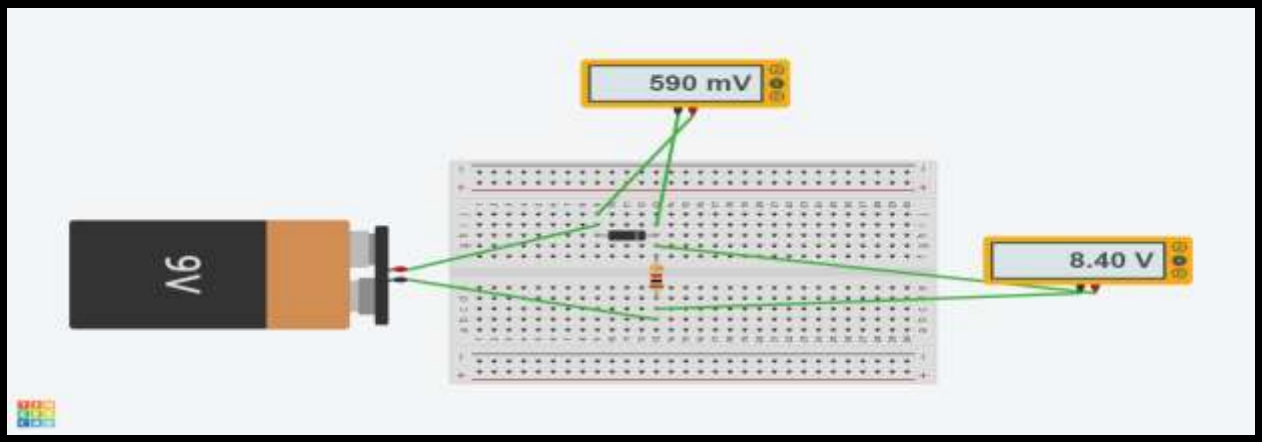
EXPRIMENT-2

AIM:-Understanding the forward and reverse bias of a PN junction diode. Estimating the knee voltage of the PN junction diode. To plot forward bias characteristics of the PN junction diode. Study about the applications of the PN junction diode.

Task 1: Connect PN junction diode in forward bias with the battery of 9V. Measure the voltage and the current through the circuit. Consider the load resistor value :1Kohm.

Ans:

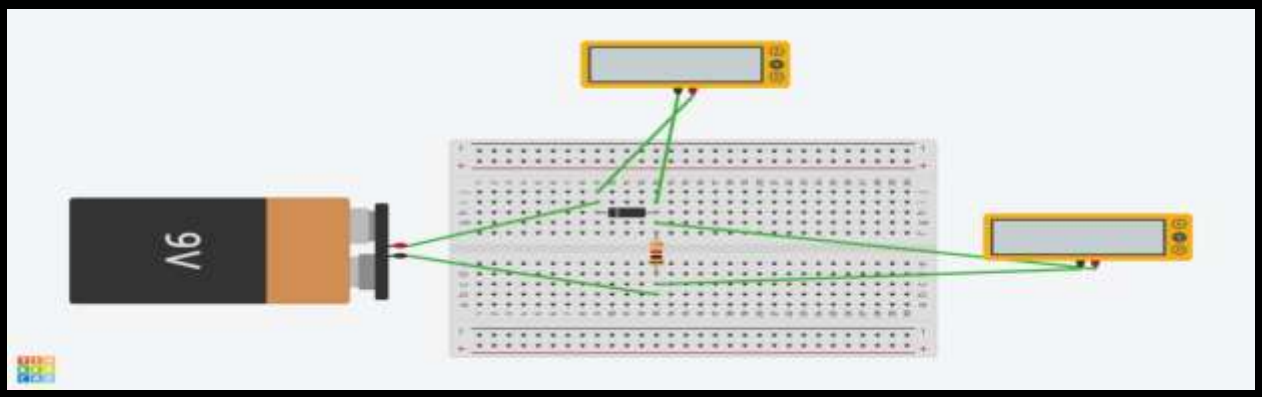


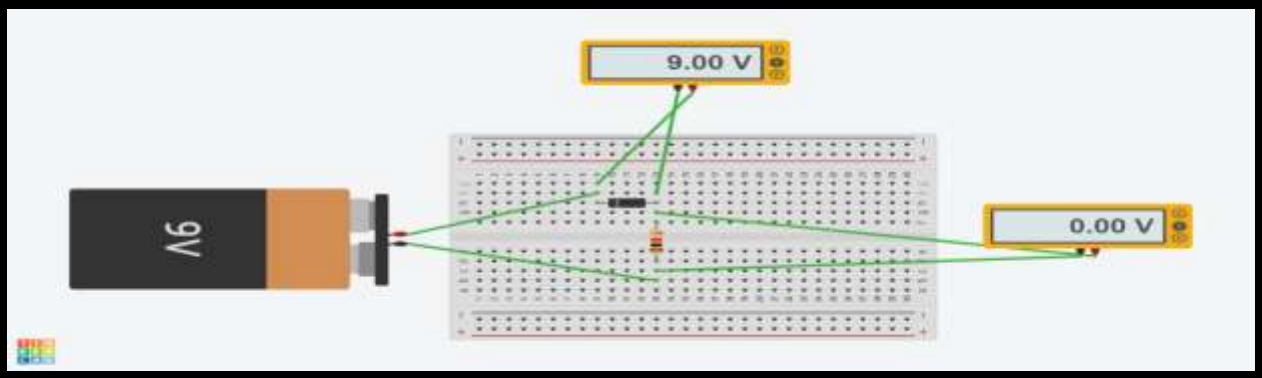


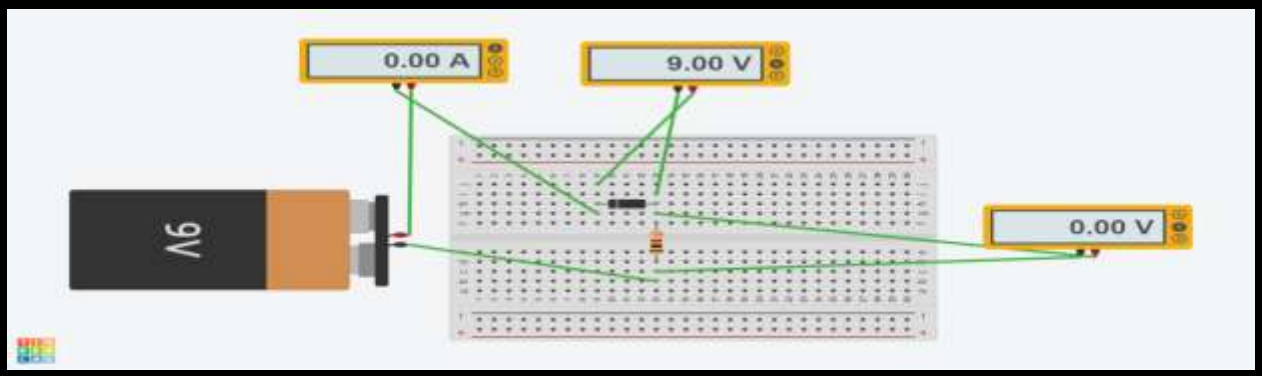
Cal:

V1=9-0.7=8.3V

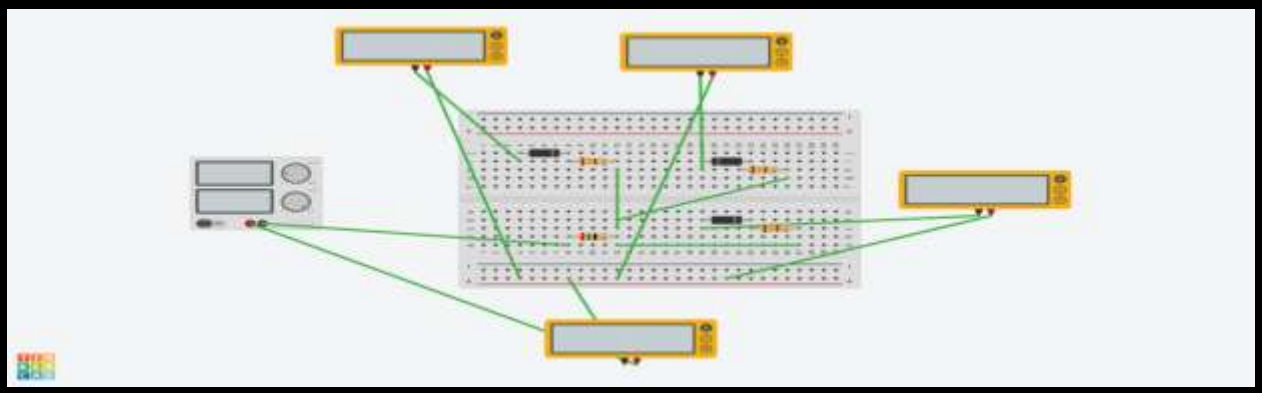
Task2: Apply reverse bias to the circuit and measure voltage and current through the circuit.

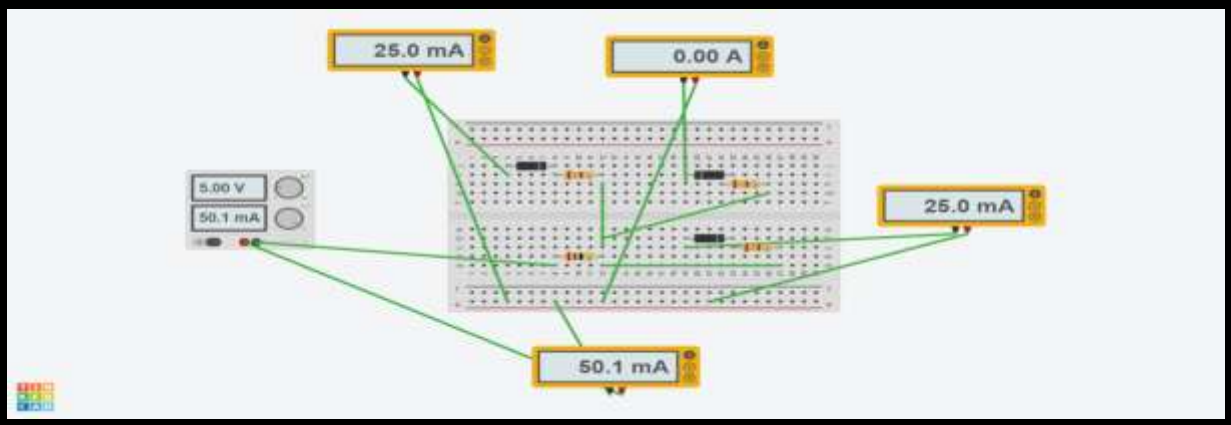




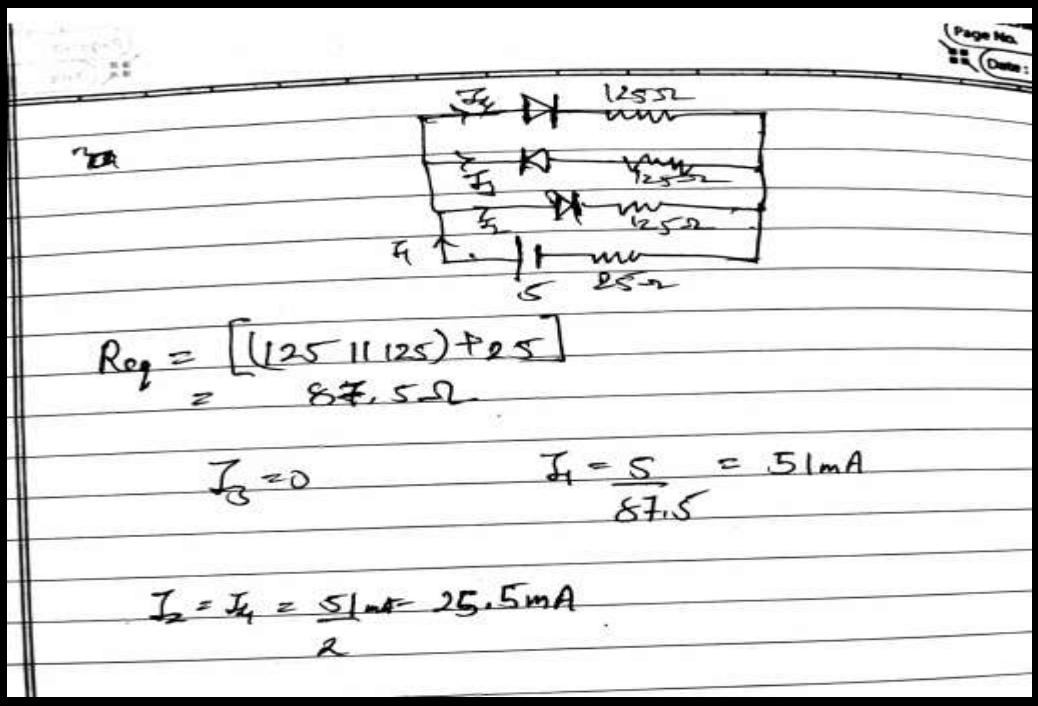


Task 3: Which diode is in forward bias in the following figure? What is the expected voltage and the current through all the resistors in the circuit?

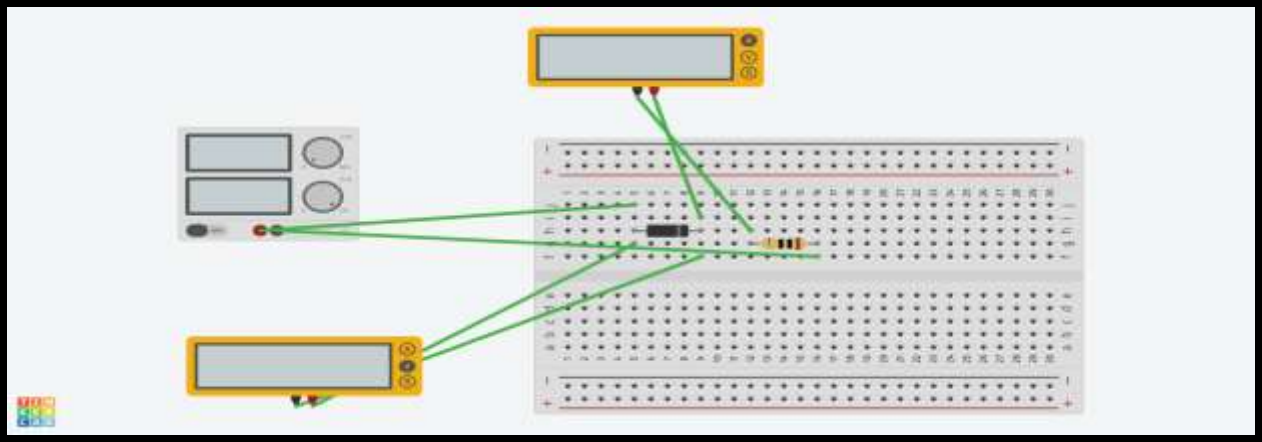




Cal:



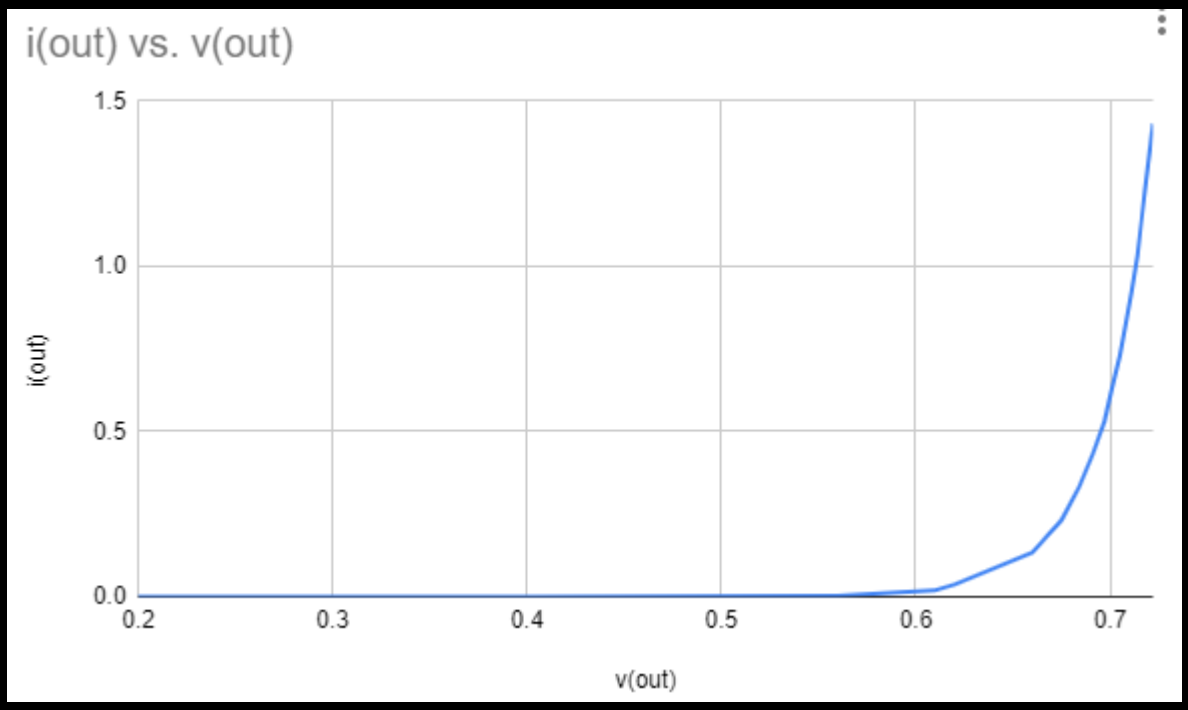
Task 4: Plot V-I characteristics. Assume the series resistance of 10ohm.



Readings:

	A	B	C	D
1	v(in)	v(out)	i(out)	
2	0.1	0.2	0	
3	0.2	0.2	0	
4	0.3	0.4	0	
5	0.4	0.4	0	
6	0.5	0.56	0.0034	
7	0.6	0.56	0.0034	
8	0.7	0.56	0.0034	
9	0.8	0.61	0.019	
10	0.9	0.62	0.037	
11	1	0.62	0.037	
12	2	0.66	0.134	
13	3	0.675	0.232	
14	4	0.684	0.332	
15	5	0.691	0.431	
16	6	0.697	0.53	
17	7	0.701	0.63	
18	8	0.705	0.73	
19	9	0.708	0.82	
20	10	0.711	0.92	
21	11	0.714	1.03	
22	12	0.716	1.13	
23	13	0.718	1.23	
24	14	0.72	1.33	
25	15	0.722	1.43	
26				

Graph:



Task 5: Study about the use of the piezo buzzer.

In simplest terms, a piezo buzzer is a type of electronic device that's used to produce a tone, alarm or sound. It's lightweight with a simple construction, and it's typically a low-cost product. Yet at the same time, depending on the piezo ceramic buzzer specifications, it's also reliable and can be constructed in a wide range of sizes that work across varying frequencies to produce different sound outputs.

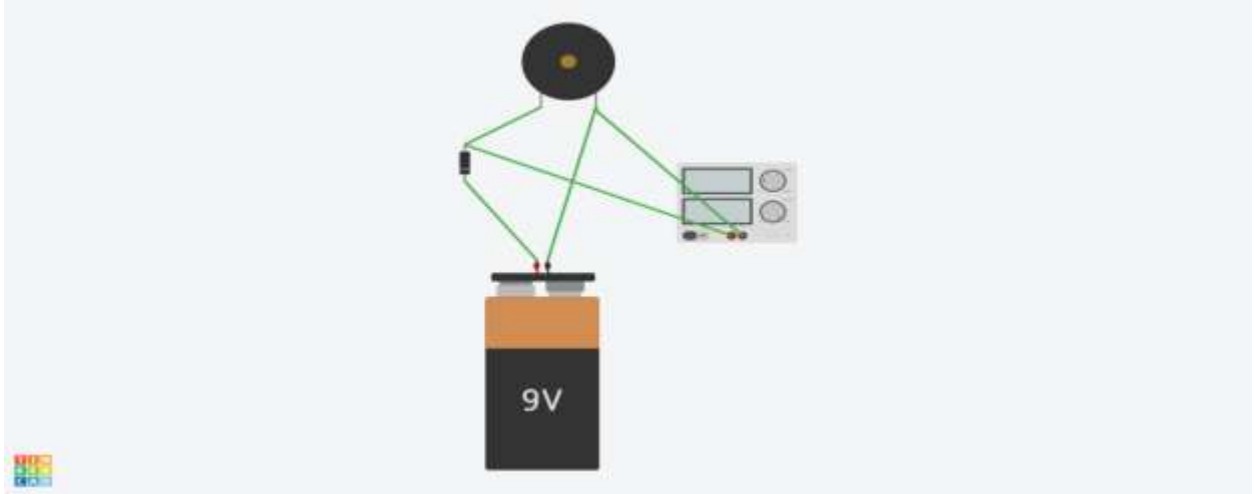
Image:

Task 6: Apply 9V supply to turn the buzzer on.

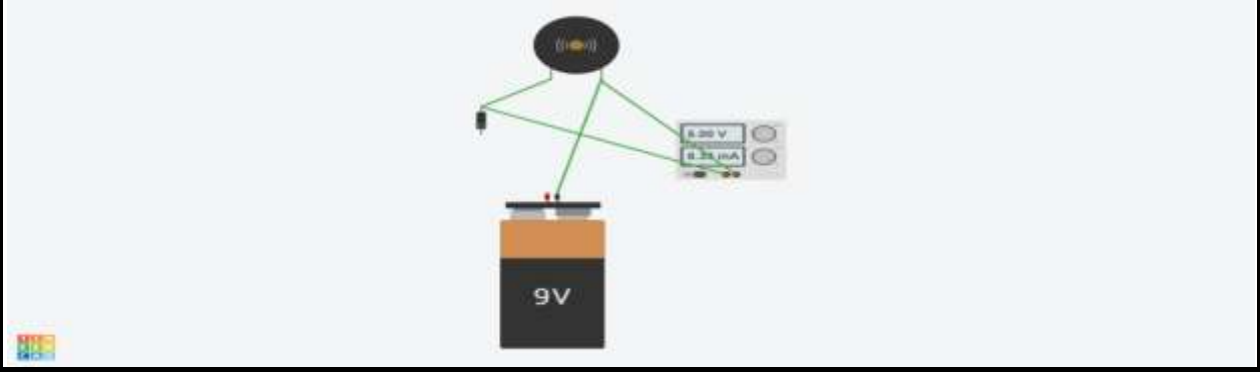
Diode applications:

Some systems use battery backup just in case main source of power fails. Design such battery backup using diode.

Main Battery Supply:

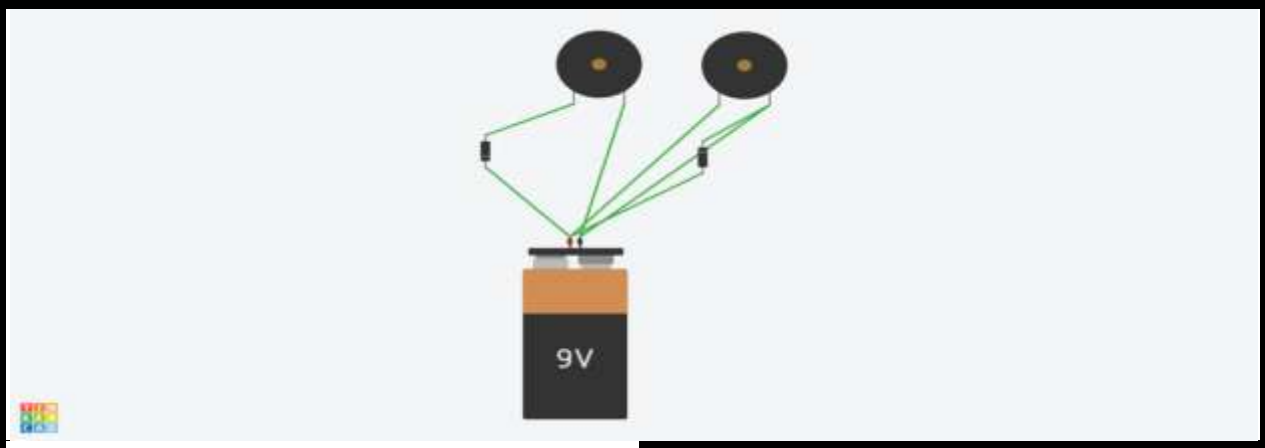


Backup Battery Supply:

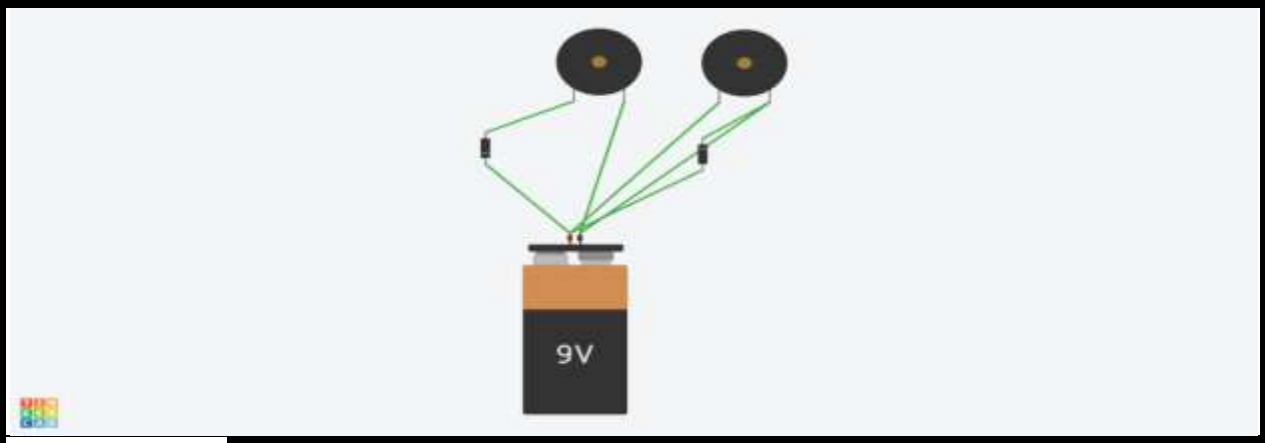


Design a supply polarity tester with the help of diode, which beeps buzzer 1 if positive supply polarity is connected and beeps buzzer 2 if the supply polarity is negative.

Circuits When +ve polarity works:



Circuits when –ve polarity works:



Conclusion:

In this lab we can know about the diode and how it work in the forward bias & reverse bias and we can able to know the characterstics of the diodehow it works at ifferent voltage value and we are able to know about the piezo buzzer and function of piezo buzzer and know how to use diode alternatively.

THANK YOU