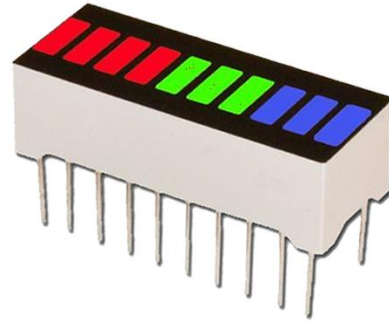


# VU Meter Project



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## Section:1

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## **Introduction:**

We Built A Circuit With A Microphone That Converts Sound Signals To Electrical Voltages And Lights Up LEDs To Show How Loud It Is. To Make This Happen, We Used An LM3915 Chip Designed For Detecting Sound Levels.

## **Components:**

- Microphone
- Capacitors (10uf And 0.1uf)
- Resistors (33k $\Omega$ , 470k $\Omega$ , 1M $\Omega$ , And 10k $\omega\Omega$ )
- LM3915 Integrated Circuit
- LEDs Bar (LED1 - LED10)



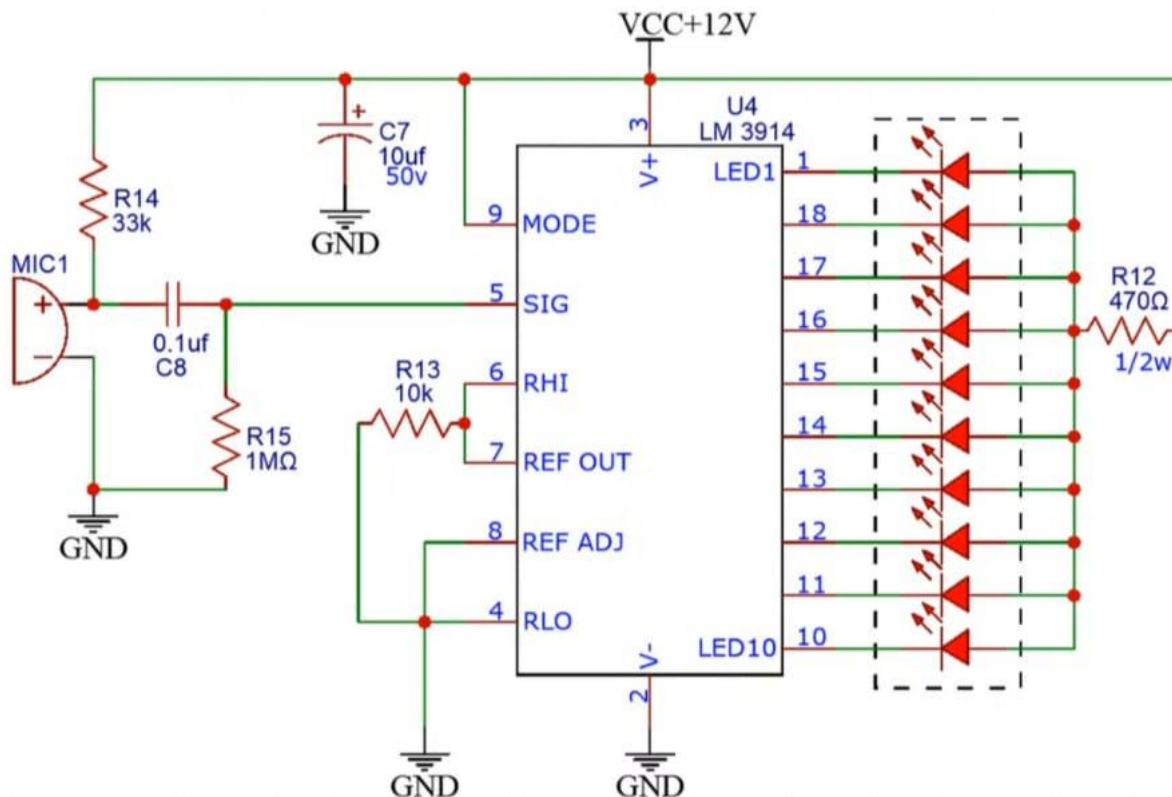
## **Functionality:**

- Microphone:** Picks Up Sound Waves And Converts Them Into Electrical Signals.
- Microphone Sensitivity:** The Microphone's Sensitivity Influences The Circuit's Response To Sound. A More Sensitive Microphone Will Trigger The LEDs At Lower Sound Levels.
- Capacitors:** They Help Filter Out Unwanted Electrical Noise From The Signal.
- Resistors:** Limit Electrical Current Flow In Various Parts Of The Circuit, Protecting Components And Adjusting Voltage Levels.
- LM3915:** Amplifies The Microphone's Weak Electrical Signal And Converts It Into A DC Voltage Level Proportional To The Sound Intensity. It Acts As The Main Processing Unit Of The Circuit.
- LEDs Bar (LED1 - LED10):** Illuminate To Represent The Detected Sound Intensity. More LEDs Light Up As The Intensity Increases.

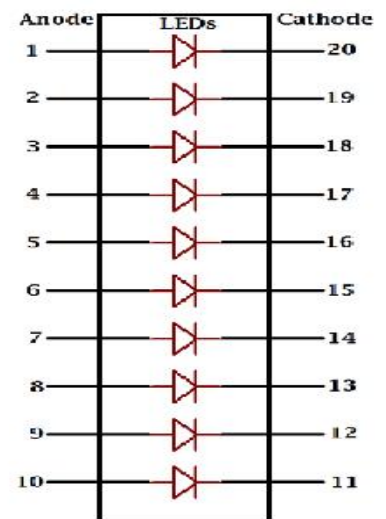
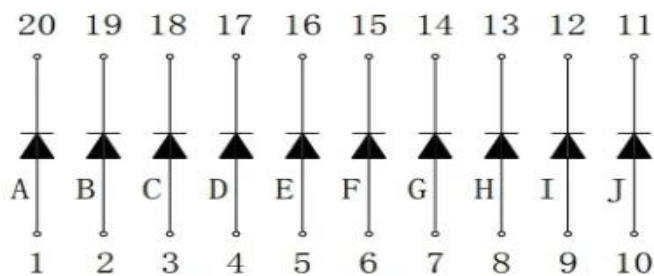
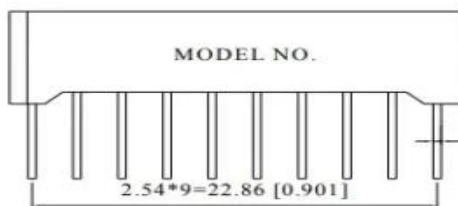
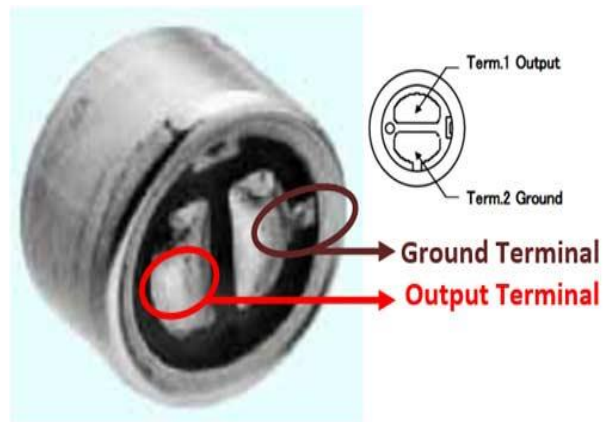
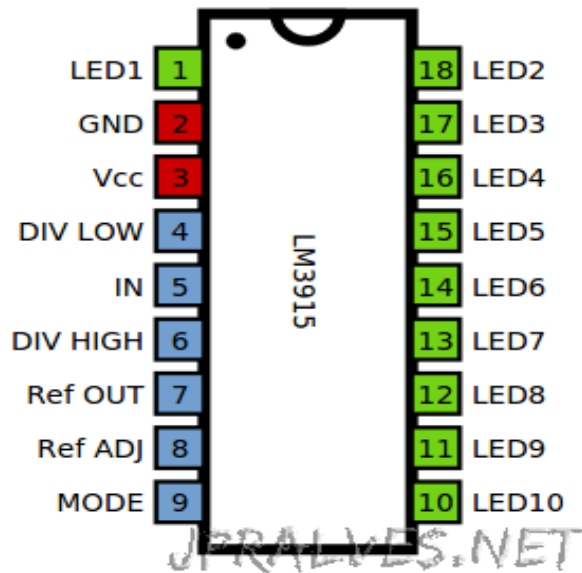
## **Operation:**

When Sound Is Detected By The Microphone, The LM3915 Amplifies The Signal. The Stronger The Sound, The Higher The Voltage Output From The LM3915. This Voltage Increase Is Compared To A Reference Voltage (Controlled By R13) On Pins 7 And 8. When The Sound-Dependent Voltage Surpasses The Reference Voltage, The Output Pins (1 To 10) On The LM3915 Switch To Logic High, Turning On The Corresponding LEDs. More Intense Sounds Will Light Up More LEDs.

## **Circuit Diagram:**

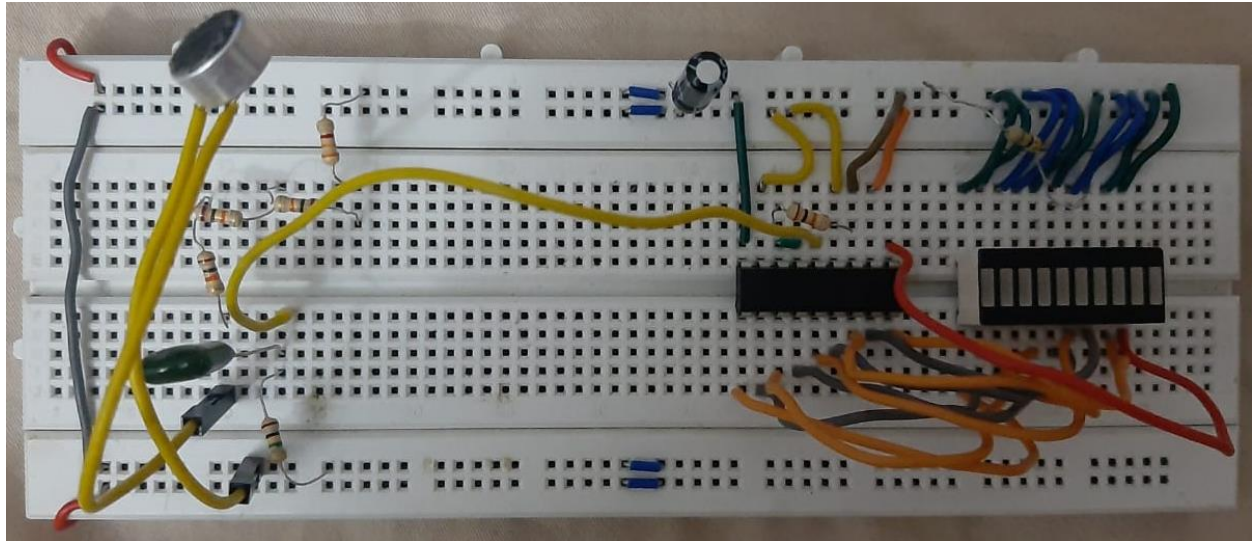


## Datasheet:



## **Conclusion :**

This Project Built A Circuit Senses To Sound. Stronger Sounds Trigger More LEDs To Illuminate. It Uses A Microphone And A Special Chip (LM3915) To Control The Leds.



Thank You