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## **RAIN SENSING ALERT SYSTEM**

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### **ABSTRACT**

Now a days there are no fix time of rain so we need the indication of rain. In this paper we develop project an automatic rain alert system that switches a siren on or off dependence upon sensing the rain. By using this this method is to reduce human intervention.

The project uses comparator board which is receive the input signal which is varying rain condition and once the comparator receives this signal, it generates an output that drives a relay for operating the siren.

The power supply consists a step-down transformer 230/12V, which steps down the mains voltage to 12V AC. 12V AC converted in 12-volt Puar DC using bridge rectifier and filter circuit.and it is then regulated to +5V using a voltage regulator 7805, which is required for the operation of the comparator and other components.

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Key Word – Comparator, Siren, Rain sensor, Relay, Transformer

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### **Introduction**

This project mostly use in farming. rain sensor after detecting the rain output of the sensor compare with the voltage which set by the preset. Using the comparator its compare and alert using the siren.

#### **HARDWARE COMPONENTS**

- Comparator
- Siren
- Rainsensor
- Relay
- Transformer

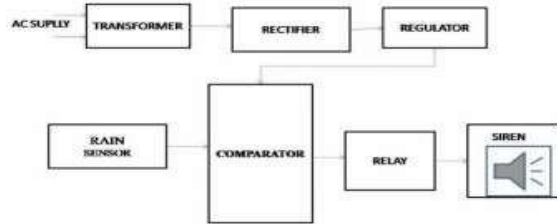
#### **SOFTWARE REQUIREMENTS**

- Eagle

#### **Block Diagram**

In the human life water is most important for the Management of water resources. also proper use usage have become increasingly important now a days the Rain sensor senses rain and alert by sound. so that possible we can save water to use for other purposes in summer.

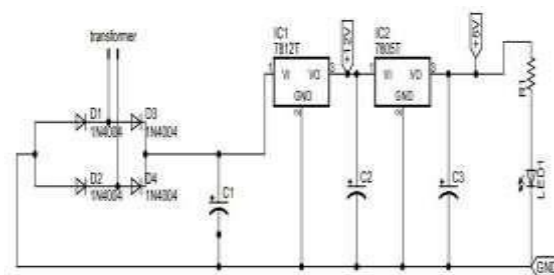
## Power supply



## Block Diagram

The rain alarm is an application that detects rainwater and sounds an alarm after detected rain water. This thesis describes a reliable sensor module that may be easily available in the market at very low cost. For the power supply, the circuit uses a standard power supply comprising of a step-down transformer which steps down the voltage 230V AC to 12V AC. After the transformer, a bridge rectifier that delivers pulsating DC, which is formed by 4 diodes, is then filtered by an electrolytic capacitor (1000 microfarad, 470 microfarad, and 100 microfarad).

The filtered DC is then regulated using IC LM7812 & LM7805. Subsequently, one LED is connected to this 5V point in series with a resistor of 330 ohms as an indicator.



## Rain Sensor

A rain sensor, also called a rain switch, is a type of switching device activated by rainfall. This module allows us to measure moisture, which comes via analog output pins, and it provides a digital output when a threshold of moisture is exceeded more than a set value. The module is made using the comparator LM393 op-amp. It also includes the electronics module and a PCB that collects the raindrops.

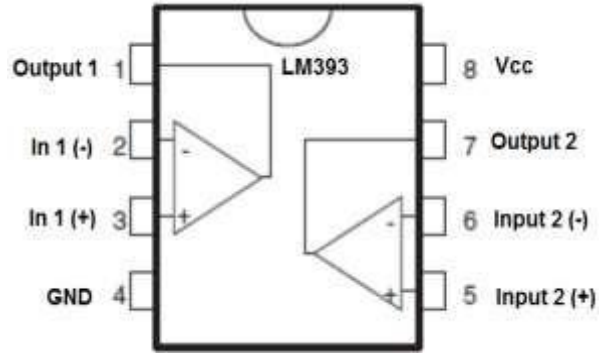
## 393 Comparator



## Comparator

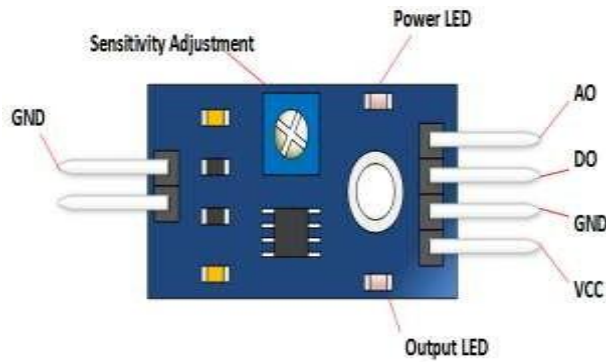
Comparator IC The LM393 series consists of two independent precision voltage comparators, which have an offset voltage specification as low as

2.0 mV maximum. For the two comparators, which were designed specifically, which are required only on a single power supply, the comparator compares the signal from the rain sensor and a set voltage and alerts by using a siren.



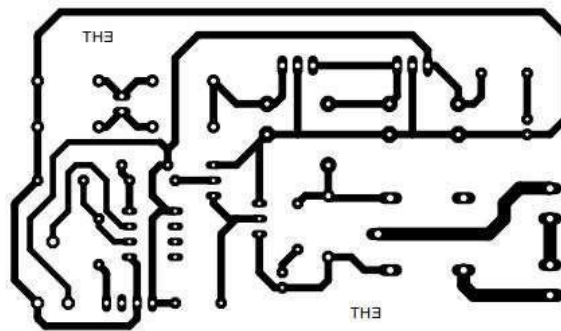
LM 393 pin diagram

relay use as a switch which have to conduction normally open and normally closed. In our project circuit are normally open when the rain drop sense by the sensor the comparator output provides to base of transistor and relay on automatically and siren gives the alert



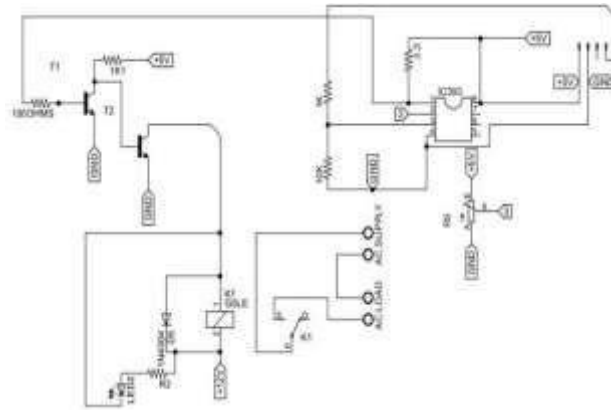
Advantages

- possible Lot of water that we can save by using a rainsensor.
- Installation of this project very easy.
- vary useful to farmer.



PCB layout

## PCB Seles screen



1. It doesn't show about the speed of the rain which is fallen on the roof.
2. It will send signal or the led will be glowing until the detector becomes wet.

**APPLICATION**

water sensor or rain switch is a switching device activated by rainfall. There are two main applications for rain sensors.

The second is a device used to protect the interior of an automobile from rain and to support the automatic mode of windscreen wipers.

**CONCLUSION**

This project is most important for detecting rain using a rain sensor. This project is mostly important and useful for farmers for farming. The rain water detector-alarm system will be useful in both domestic and industrial applications. Embeddronics. <http://www.embeddronics.com> [6]  
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