| 30           | rnal or Po   | OR                                | ORIGINAL RESEARCH PAPER           |             |             |           |              | Engineering  |         |  |
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| Indian       | PARIPEL S  | MEC                               | HATRONICS BA                      | SED SMART   | FAN         |           | KEY W        | ORDS:        |         |  |
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| E            | A smart fan is a development of an ordinary fan that consists of several features to help more comfortable and easier life. Ordinary |                                   |                                   |             |             |           |              |              |         |  |

A smart fan is a development of an ordinary fan that consists of several features to help more comfortable and easier life. Ordinary stand fan is operated manually which people has to determine the speed of the fan and the oscillation of the fan is fix at a certain degrees. The smart fan is developed to have a speed regarding to the environment temperature and it will only operate as there is presence of human. In this project Fan is operate through sensor automatically. There are two sensors LM35 and LDR is used to turn on or off the fan. There is no human efforts are required to operate the fan. In this way it will be help full in saving electricity.

## 1. Introduction

In the public area, people hesitate to turn off the fan after the usage. This leads to the wasting of energy. To avoid this situation, a fan that will be operated only in the presence of human is needed. The fan speed not according to the needs makes people feel uncomfortable A.C will be on which will lower down the temperature and similarly if temperature is low or will decreases from a certain limit than heater will be on, in this way the temperature controller system will work. Technology has always been of great help to the industries and given them a helping hand to run autonomously. We have come up with a novel idea of temperature controller system which will sense the temperature of its surrounding and will adjust the temperature autonomously.

To overcome the problems a fan control system has been developed. This allows the fan to operate according to the followings:

- Presence of human
- The ambient temperature
- The position of humans

There by reducing energy wastage. The control system comprising a temperature sensing module for determining the surrounding temperature when the fan is operating. The sensor which we are using in this is LM35 which senses the temperature will give out the analog signals.

#### 2. Components used 2.1 SENSORS

#### 2.1 LM35

There are two transistors in the center of the drawing. One has ten times the emitter area of the other. This means it has one tenth of the current density, since the same current is going through both transistors. This causes a voltage across the resistor R1 that is proportional to the absolute temperature, and is almost linear across the range. The "almost" part is taken care of by a special circuit that straightens out the slightly curved graph of voltage versus temperature.

The amplifier at the top ensures that the voltage at the base of the left transistor (Q1) is proportional to absolute temperature (PTAT) by comparing the output of the two transistors.

The amplifier at the right converts absolute temperature (measured in Kelvin) into either Fahrenheit or Celsius, depending on the part (LM34 or LM35). The little circle with the "i" in it is a constant current source circuit.

The two resistors are calibrated in the factory to produce a highly accurate temperature sensor.

The integrated circuit has many transistors in it two in the middle, some in each amplifier, some in the constant current source, and some in the curvature compensation circuit. All of that is fit into the tiny package with three leads.



## 2.2 LDR SENSOR

A Light Dependent Resistor (LDR) or a photo resistor is a device whose resistivity is a function of the incident electromagnetic radiation. Hence, they are light sensitive devices. They are also called as photo conductors, photo conductive cells or simply photocells.

They are made up of semiconductor materials having high resistance. There are many different symbols used to indicate a LDR, one of the most commonly used symbol is shown in the figure below. The arrow indicates light falling on it.

A light dependent resistor (LDR) works on the principle of photo conductivity.

### 3. Advantages

- This project can be used in Home.
- This project can be used in Industry.

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- This will help in saving the energy / electricity.
- It is also helpful to prevent the human effort. •
- The people who are disabled can be switch on /off the fan • easily.

# 4. Disadvantages

- It can only be maintained by technical person. Thus, it becomes • difficult to be maintained.
- Due to temperature variation, after sometimes its efficiency • may decrease.

### 5. Conclusion

In this way we had concluded that temperature of room will be increase or raise then fan will be run. It will be helpful for disabled person as there is no requirement of human effort. This technology can be exploring in future at large level. Window and central air conditioning in the 1960s caused many companies to discontinue production of fans. But in the mid 1970s, with an increasing awareness of the cost of electricity and the amount of energy used to heat and cool homes, turn-of-the-century styled ceiling fans became immensely popular again as both decorative and energy efficient units. In this way smart fan is very effective in saving energy.

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