

## **Abstract**

In recent times production of energy has become very costly due to diminishing natural resources. So many countries and states are facing a lot of energy crises. In the coming future the energy crisis may further increase due to increase in population and change in lifestyle of the people. To address the problem the alternative solution is to make use of available energy effectively and efficiently.

In the colleges and offices the electrical devices such as light and fans are on most of the time even though they are not in use. This causes huge waste of energy. The lack of availability of sufficient manpower and other factors aggravate the problem. Further non switching off high power consuming devices such as ACs, Heaters, Halogen Lamps etc causes more energy wastage.

In this scenario, sensors play a major role in conserving energy. Sensors with different properties can be used to effectively control the electricity flow to devices in different locations in offices and colleges.

The present project studies the electricity usage in Tara government College Sangareddy and gives solutions to reduce the energy consumption in the college. The recent advances in sensor technologies and also the reduction in prices of the sensors creates an opportunity to implement the sensor technologies in the college thereby reducing the huge amount of power bills.

By using motion sensors we can switch on the lights in the classrooms whenever the students are there and switch off when the motion is not detected. This saves a lot of energy. So many companies have been shifting to this energy efficient sensor based technology.

Photo sensor detects daylight and night which when used for outside lights reduces a lot of energy wastage. Even one hour switching off power at the correct time significantly effects the energy savings. Reduces manual intervention.

Initially, we have demonstrated this sensor technologies in the physics department. By using PIR motion sensor and photo sensors at correct locations we have reduced a significant amount of energy consumption in the department. Hence we suggest that if these sensor technologies are applied to the entire college, it can save more than one lakh rupees per year. Further, it is estimated that the amount invested for the setting up sensors can easily be recovered within a year. There is a lot of scope for implementing these sensor technologies in most of the colleges in the state of Telangana to conserve energy and reduce a significant amount of power bills.