

## ABSTRACT

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In developing a green future, there is a need to reduce the energy consumption and cost by letting application workloads drive power usage when needed. Thus, an automatic bus stop is designed to achieve energy saving by controlling the power consumption. This project is about building a power saver control system which can automatically control the brightness of light and speed of fan in a bus stop according to the number of people and surroundings temperature. A light sensor is used to differentiate day and night time. During night time, light is switched on automatically. When more people enter the bus stop, the brightness of light and of speed of fan increased. On the other hand, the light brightness and fan speed decreased as less people presents in the bus stop. Fan will automatically switched off when the last person leaves or raining. PIC16F873A microcontroller is implemented as the brain of the project itself. The IR sensor is adapted for outputting a signal towards the PIC when people enter the bus stop. The PIC receives the signal from the sensor and correspondingly control the light brightness and fan speed. In between, the number of people presents in the bus stop is displayed on the LCD display. Temperature sensor is used to detect surroundings temperature. Rain detector also implemented for the purpose of detecting rain. In this report, the project is introduced with a system block diagram followed by literature review that researches the previous work done and main components concerning the project. The methodology includes the technical explanations about the sensor circuits and main circuit board of the project. Programming related software, flow chart and source codes also elaborated for better understanding. The report continues with the results that show the circuit boards testing. The report enclosed by conclusion and recommendation of future work.