



**DESIGN AND DEVELOPMENT OF AN  
AUTOMATIC SWITCH TO REDUCE ELECTRIC  
USAGE IN LECTURE ROOM**

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“I hereby declare that this thesis is based on my original work except for the quotations and citations, which have been acknowledged. I also declare that it has not been previously or concurrently submitted for any other degree at UiTM or other institutions.”

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## **ABSTRACT**

The purpose of this study is to investigate the current wastage in UiTM Pulau Pinang and to design a device that can reduce the wastage of electricity in UiTM Pulau Pinang because of a too high electricity bill. The lecture room in BKBA building is taken as a sample because it is likely one of the main causes of wastage when the air conditioner and lighting are on when the room is empty. An observation was made in a selected lecture room, and it confirms that there is a significant wastage in the lecture room. From the observation, it shows that the total of wastage in 1st-floor lecture room is 24 hours in a week (252 lecture hours) equal amounting to 9.52% from the scheduled class. This is equal to 49.896 kWh total wastage in a week. An automatic switch is design and developed to reduce this wastage. The circuit was electronically controlled using Arduino Nano that will set the timer for 1 or 2 hours when using the lecture room. Therefore the system will cut off the electricity once the time reached and the buzzer will produce a sound to alert student and lecturer to warn the class is over and the air conditioner and lighting will be off. Prior to that the electrical wiring and air-conditioner system is examined so that a proper circuit can be designed to withstand the rated current. As a conclusion, an automatic switch can reduce the wastage of electricity in UiTM especially in the lecture room. It also can reduce the total electricity expenditure.