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FINAL REPORT:
SMART STREET LIGHT

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ABSTRACT

This system is designed for outdoor application in un-electrified remote rural areas. This system is an ideal application for campus and village street lighting. The system is provided with battery storage backup sufficient to operate the light for 10-11 hours daily. The project is about to develop and fabricate the circuit that can charge the lead acid battery during day time by using solar as the source. When the lead acid batteries reach the limit voltage, we use diode to prevent excess voltage from charging the solar panel. For the switching, we used PIC16F877A to switch on the lamp, by using the photocell sensor. The PIC16F877A will determine whether it is daytime or night time. The light will automatically on when the photocell sensor give the input to the PIC and PIC will give the output to the Liquid Crystal Display (LCD) to show the Analogue-to-Digital (A/D) value. At the same time the PIC will give the A/D value to the LED and this value will be send to Pulse Width Modulation (PWM) to control the intensity of LED. PWM control the intensity by controlling the voltage of LDR. When night change to the day, photocell sensor detect the ray from the sun, PIC will give the output to off the lamp and the charging circuit will continue charge the battery for the day. Lastly, the LCD will produce an output to the road user.

CHAPTER 1

INTRODUCTION

1.1 Background of Study

One of the important parts of a city's infrastructure is a street lighting where the main function of street lighting is to illuminate the city's streets during dark hours of the day. In the ancient times, the number of streets in the town and city is less compare to this day. Therefore, the street lamps are relatively simple but with the development of urbanization, the number of streets increases rapidly with high traffic density. There are several factors need to be considered in order to design a good street lighting system such as night-time safety for community members and road users, provide public lighting at cost effective, the reduction of crime and minimizing it is effect on the environment.