



UNIVERSITI TEKNOLOGI MARA

**FINAL REPORT :
PROPELLER CLOCK**

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ABSTRACT

Propeller clock is a special kind of circular LED display. It is making use of phenomena known as Persistence of Vision (POV). Persistence of Vision, which means that if something appears in the same spot consistently, at least 50-60 times per second, our brains think that it's permanently there when it is not. Conventional methods of displaying images to public are using LCD display and dot-matrix LED board.

Propeller clock is a device that project an image or time as if the images are floating in the air. The floating image is received because of human eye limitation. The floating images emerge by synchronizing LED's blink to form an image at particular time and rate. This propeller clock is mechanically scanned and displays in digital format. Made from scrap it can be used anywhere and everywhere and the interesting fact is that its crystal clear display. Maintenance and repairing of the display is so easy. All the synchronizing can be implement through software.

The propeller clock is designed to demonstrate how this project can display images or message. The purpose of this project is to display LED clock by a mechanically rotating bar of LED. The propeller clock is mechanically scanned LED Clock with LED that spin, giving the illusion of numbers floating in the air.

This project consist two main circuits which are motor controller circuit and LED circuit. When DC motor is rotating, the floating image will appear. The synchronization of DC motor speed and LED blink will cause the image visible to human eyes. So the desired image such as clock can be programmed and displayed.

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CHAPTER 1

INTRODUCTION

1.1 Background of study

Conventional methods of displaying images or message to public are using LED display is a special kind of device that project an image, text or time as if the images are floating in the air. Actually the floating images emerge by synchronizing LED's blink to form an image at particular time and rate.

Propeller is a term associated with a circular rotating objects. Propeller clock is a clock, displayed by a mechanically rotating bar of LED. A motor will spins the propeller, and a small microprocessor keeps track of time and change the pattern on LED with exact time. Persistence of Vision (POV) is the phenomenon which is related to vision capability of human eye by which an after-image is thought to persist for approximately $1/25^{\text{th}}$ of a second.

Firstly, Propeller Clock was design by using Atmega328P which has been programmed using Arduino Uno Board. Atmega328P running by followed the instruction that have been programmed and LED will be blinking. Secondly, this project was design by using motor. Motor are using different power supply and controlled by using potentiometer manually. Besides this there are many methods to build up propeller clock but by choose Atmega328P and potentiometer in this project becomes more efficient and affordable.