

Writing Sample D

Abstract

The goal of our design project consists of converting an electromechanical timer into a solid-state timer. There are several ways to achieve the goal in developing this timer. In this approach we have developed five primary components to the timer. These components are the relays, power supply stage, microcontroller, user interface, and enclosure. Each component will be worked on separately to make sure the circuit works for each component. On computer simulation to make sure that the design works, which later on will be combined into a larger circuit and tested in environment for temperature and confirm that the design is fully functional. Each member is currently working on the design to ensure optimal functionality. The current status of each part is present in the report.

Introduction

The sponsor for this project is Capewell Aerial Systems, which is located in South Windsor, CT. This company provides engineered products for aerial delivery, life support, and tactical gear for military, law enforcement, and humanitarian agencies (Capewell website)¹. For this project, we will be working with their sub-company called MARKTIME, which produces timing devices for military flares, residential lighting, and industrial appliances (MARKTIME website)². The product we are asked to modify is called the 'Motorized Cycle Time C10 Series'. This product is used to control timing functions in machinery or appliances such as commercial dishwashers. The original product used a motor to move cams that will active or de-active mechanical switches depending on the rotation of the cams. The cams were connected parallel so that it could perform several operations that could be controlled simultaneously and in synchronization. The solid-state devices have significant improvements over mechanical devices in that these devices have a longer lifecycles because the solid-state devices have no moving parts due to the mechanical timer parts that wear out over time.