10.0 Summary

According to the general trend of technology, many, if not all mechanical devices are being digitalized. These ranges from converting serial communication, i.e. communication between microcontrollers via a electric wire, to IoT integration, such as communication over a TCP layer. These technologies allow the user to control a wide variety of objects over the internet, without the need of a cable. Not only IoT implementation is more elegant and cheaper to maintain in a long-term, it is also more convenient for both the user and the maintainer.

In development of a winch system for automated entry shutter with IoT extension, the integration between mechanical and digital devices are explored. Entryway, in particular, can have a wide range of benefits in data analysis, measuring the traffic trend of certain areas throughout a day. These statistics can be used for marketing purposes, or security purposes in corporate buildings.

In this paper, a centralize server was implemented into the Local Area Network, making it possible to have a main controller that controls every door in the building remotely. However, it is possible to decentralize these microcontrollers, saving the cost and need for a server. With a decentralized network, the user has to move to the location of each doors, and remotely configure their statistics, via an app.

As a unique aspect to the design, the prototype is capable of automatically close entryways, have a built-in IoT microcontroller that handle communication between client-server, and a centralize server, which is remotely accessible over the internet, granting the user to remotely control different doors in a network, all being cheaper and cheaper to maintain, with minimal power usage.

On the other hand, a centralized server can have dire consequences if hacked. With the ability of remotely control different doors, malicious conducts are easily committed.

In conclusion, there are advantages and drawback to the proposed design, but with further improvements and prototypes, these drawbacks can be decreased.