California State University San Bernardino
School of Computer Science and Engineering

CSE 575 Internship in Computer Science

Date

August 14, 2020

Time

9:00

Location

https://csusb.zoom.us/j/98225254724

Title

Improving upon the X-57 70 kW PMSM

Student

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Advisor

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Abstract

The X 57 70 kW Permanent Magnet Synchronous Motor (requires a power rating of 120 kW to be a viable component of a human piloted quad copter By utilizing software such as Finite Element Method Magnetics (D Meeker), Opera 3D and Solidworks® (Dassault Systèmes SE, Vélizy Villacoublay, France), many of the attributes of an electric magnetic motor such as torque, force, and energy can be determined and studied The diameter of the motor, amount of current, and number of magnets must be augmented to increase the power rating of the

X 57 Simple changes such as increasing the depth of the magnets has shown to be a relatively simple yet effective way to increase torque so that the engine can lift itself and any additional weight Computer aided design (software was used to virtually materialize the components of the motor for further study and manufacture Additionally, the creation and improvement of software was necessary to test the enhanced electric motor Future research and development of aircraft that can be piloted easily with minimal training will be necessary as electric exclusive aircraft are being accepted into the domestic sphere