

Project Confirmation Memorandum
EE 419
Dr. Anakwa

Title of Project: Active Suspension Test Platform – Control

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Advisors: Prof. S. Gutschlag

Project Overview:

The overall purpose of the project is to design and build a reliable test platform to simulate the effects of various inputs expected by active suspension systems during normal operation (e.g., automotive suspensions and operator platforms for agricultural equipment). The platform will be utilized to provide simulated inputs to test future active suspension design projects for the Bradley University ECE department.

The initial focus of this project will be to develop a mathematical model for a given linear actuator and motor assembly. The project will then develop a closed loop feedback model of the platform, actuator, and motor. The closed loop model will be used to adjust a pulse width modulated (PWM) signal to ensure the platform provides the desired input regardless of the load applied to the platform. Matlab and Simulink will be used to design and simulate the required feedback system, and the actual feedback control system will be implemented utilizing an EMAC Micropac 535 micro-controller based development system. Another project team will select the proper linear actuator for the system and provide the power electronics required for the interface with the EMAC Micropac 535 based feedback control system.