

Graduation Design Project Proposal Form

Project # P11

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| Project Title: Development of Real-Time Visualization Software for Open-Loop and Closed-Loop Performance Analysis of a DC Motor |
| Professor(s) Name(s): 1. Dr. Irfan Ahmad 2. |
| Number of Students: Two |
| Students Qualifications Students must have background in design methods and performance analysis of a dynamic system. Interested students must have good programming skills with MATLAB / Simulink for simulation. |
| Statement of Problem Performance analysis through real-time visualization software is an important aspect for any system. Performance of the system can be well monitored and controller parameters can be modified, if required, to achieve the desired performance. The effects of different kinds of disturbances and control action to counter the effect of these disturbances can also be well monitored through real-time visualization software. The aim of this project is to analyze the performance of a DC motor through real-time visualization software in open-loop as well as in closed-loop with a suitable controller. |
| Brief Description of the Project This project will cover the dynamic modeling, system identification, controller design with real-time implementation and finally development of simulation software as well as real-time performance visualization software for a DC motor. MATLAB / Simulink will be used for simulation as well as for real-time performance visualization. The effects of different kinds of disturbances for a DC motor and the counter action of controller will also be monitored and analyzed through real-time visualization software. A prototype will be developed in this project. |
| Objectives Following tasks will be performed during this project: <ul style="list-style-type: none">1- Literature survey2- System dynamic modeling3- Development of a prototype4- System identification5- Controller design and implementation6- Development of simulation software7- Development of real-time visualization software |
| Technical Approach and Expected Deliverables The deliverables will be real-time visualization software in MATLAB and a prototype |