Motor Controller Implementation Using Model Based Design

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Abstract : Model-based design (MBD) is a mathematical and visual technique for addressing design issues in the fields of communications, signal processing, and complicated control systems. It is utilized in several automotive, aerospace, industrial, and motion control applications. Virtual models are at the center of the software development process with model based design. A method used in the creation of embedded software is model-based design. In this study, the LAT motor is modeled in a simulation environment, and the LAT motor control is designed with a cascade structure, a speed and current control loop, and a controller that is used in the next part. A PID structure serves as this controller. Based on techniques and motor parameters that match the design goals, the PID controller is created for the model using traditional design principles. The MBD approach will be used to build embedded software for motor control. The paper will be divided into three distinct sections. The first section will introduce the design process and the benefits and drawbacks of the MBD technique. The design of control software for LAT motors will be the main topic of the next section. The experiment's results are the subject of the last section.