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Programming and Verification of a Laser-based Position Detection of Linear and Rotatory Electric Actuators with Labview followed by its Integration into Existing System.

ABSTRACT - Masterthesis

One in every four sensors produced worldwide is installed in a motor vehicle. Sensors make many of these systems function like measuring engine speed, vehicle speed, temperature, etc. These kind of functions is made control and switch with the help of actuators. So actuators play a vital role in automotive industries. Its purpose includes along with sensors ensuring occupant protection, enhancing riding comfort and providing driving fun while keeping emissions low. This kind of components being relevant to safety, they are required to guarantee lifelong reliability over more than 15 years. Malfunctioning of any sensor and actuator systems or their complete failure can lead to vehicle breakdown.

To avoid such situations, providing much safety and reliability of the actuators depend on the precise positioning and measurement of actuators. This is to be done by non-contact based measurement using laser in order to diagnose defective parts or to develop a secondary sensory system of actuators and for future precision requirements. Linear and rotatory electric actuators are being calibrated and measured by laser based positioning using LabVIEW Programming which is run in LabVIEW real time stand-alone process.