

ABSTRACT

Design, Construction, Automation, and Characterization of Magnetorheological
Fluid-based Damper for Small Displacement

by

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The conventional damper is still widely used in many fields, as it plays an important role toward vibration. The use of magnetorheological fluid, with its special characteristics are taken into consideration. Magnetorheological(MR) fluid, is a smart carrier fluid. When it is subjected to magnetic field, the fluid will greatly change its behavior. With MRF, it is expected that the damping behavior of the system can be controlled.

In order to learn about the behavior of the damper toward vibration, a testing setup is required. But up until this thesis is written, there has been no testing setup built for examining shear-mode MR Damper. Therefore, the testing system is built to solve the problem.

This thesis summarizes all the process during the creation of this system. Start from reviewing research made for MR Damper, designing, until construction and automation of the system. Considerations taken during the process will also be explained step by step.

In the end, experiment can be done and data is analyzed by using supporting program such as MATLAB. So that it can be concluded that Magnetorheological fluid usage toward damper can bring such advantageous effect in modifying damping behavior.

Keyword: *Magnetorheological fluid.*