

Master 2017

Christian Leonardo Sanchez Hernandez

**Piezo-Driver Design using a Class-D Amplifier for a Sensor/Actuator Node
in a Structural Health Monitoring (SHM).**

ABSTRACT - Masterthesis

In the present project, the problem of a piezo-driver design for a lamb-wave generation on a wireless SHM sensor/actuator node is carried out. This system is meant to be used as a part of a SHM that will be employed to identify possible damages in aircraft airfoils.

There are a number of different classes of amplifiers that would allow driving the PZT actuator. However, taking into account the electric power efficiency and the current developments and thesis investigations on this subject, this will be focused on the analog design of a class-D amplifier.

It is expected to realize the development through the following stages: Documentation, Modeling of the system, Evaluation of the available technology, Design and finally testing in Mentor graphics IC design suite.