Project I Description

Project Name: **Robots for Relief (ASME Student design competition)**

Sponsor: **LAU – National Instruments**

Team Size: **4 MEE Students**

2 teams

Project Overview

Delivering aid, including clean water, food, fuel, and medical supplies to places, such as the Philippines after Typhoon Haiyan, is a difficult task, as transporting bulk materials over uneven and rough terrain, in tight spaces, and over long distances is often required to help those in need. The aim of this project is to design and develop a scaled-down version of a transporter capable of delivering granular materials through water and sand as well as up and down a stair setup. The transportation course course is designed to capture the various challenges that a vehicle might see in the real world. As such, the granular material delivered needs to be “edible” once delivered, and therefore neither damaged nor contaminated.

Project Areas and Majors needed

Kinematics (2 MEE Student)	Instrumentation (2 MEE Student)

Project Deliverables

Design and Build the following systems:

- Build and test a prototype system which will be capable of efficiently transporting a variety of granular materials (e.g., rice, beans, etc.)
- The device must be controlled through a transmitter/receiver radio link
- The device must be powered by rechargeable batteries
- The device must fit inside a 25 cm x 25 cm x 30 cm rectangular box
- The device must climb a ramp that is 75 cm x 125 cm with a rise of 10 cm
- The device must pass through a water section 40 cm by 40 cm by at most 10 cm deep.
- The device must pass through a sand section 40cm x 40cm x10 cm deep.
- The device must traverse three 40 cm by 40 cm steps of unequal height. The height of each step will be between 5 and 20 cm
- There will be a 10 cm diameter hole centered in the top step, into which your material must be delivered.