

## ABSTRACT

**CABALUNA, MARK ANTHONY T., SEVILLANO, CARLO T. Design and Development of RC Railed Robot for Coffee Nursery Logistics.** Undergraduate Design Project. Bachelor of Science in Computer Engineering. Cavite State University, Indang, Cavite. October 2013. Adviser: Marivic G. Dizon.

The RC railed robot was designed and developed to provide an alternative way of transferring polybags from manual operation to an automated logistic system for the coffee nursery. The ability and limitations of the robot depends only on the inputs coming from the remote control to lift and transfer a pallet containing polybags to a designated place and the mobility of the robot was limited to follow only the path of the railway.

The RC railed robot was composed of microcontroller unit, dc motors, transceiver, sensors and powered by a 12V power supply. The Gizduino microcontroller boards reads and interpret commands sent and received by the transceivers to the robot. A remote control unit was used to command instructions the robot has to perform.

The design project was setup and evaluated at the National Coffee Research Development and Extension Center. The robot was tested by determining its speed every five meters up to 15 meters while adding one polybag from zero to a maximum of four polybags per tries. The effectiveness of the remote control was also tested in different distances ranging from 10m to 50m with three trials each. The accuracy of the robot to lift a pallet and place it into an empty space was also examined and was found accurate.

Results of testing and evaluation showed that the robot was able to receive and interpret commands provided by the remote control as well as perform the tasks successfully.



The most significant recommendation was to use a counterweight at the rear side of the robot to avoid unnecessary lunging or derailments of the robot if lifting heavier or greater number of pallets is desired. The project cost was Php 21,289.00.