

SoutheastCon 2006
“Absolutely, Positively”
Hardware Competition Description

Challenge: FedEx has three flights about to leave from Memphis. One will depart in 3 minutes, one in 4 minutes, and the last in 5 minutes. Twelve FedEx packages must be loaded correctly on the three planes before they depart.

Test track: The airport ramp area is represented by a sheet of plywood. Package-sorting/loading vehicles start from its parking space (a square painted in one corner of the ramp) upon a verbal signal that begins each round of the competition.

A package stacking chute consisting of a triangular FedEx mailing tube positioned vertically over one corner of the board is filled with 12 “packages.” Barcodes affixed to each of the packages indicate the plane onto which it should be loaded.

The airplanes are represented by cardboard boxes with open tops. They are placed on the ramp in a configuration similar to that shown in the ramp layout drawing.

Approach: An autonomous package loading robot will extract packages, one at a time, from a stack inside the package chute. As each package is removed from the bottom, the next package drops into position onto the ramp surface until all packages have been selected. The order of the packages coming from the chute is unknown to the robot for each round.

The robot will read the barcode affixed to each package to determine the airplane onto which it should be loaded. Each plane has four packages assigned to it. It is left to each team’s design strategy how to optimally get the packages onto the correct airplanes. Examples include pre-sorting, loading each package in turn on the correct plane, etc.

Points will be awarded for the timely and accurate loading of packages and deducted for errors or damage.

8/5/05