

Newbie Help for VMAC

This document provides a how-to for using the factory controller and vehicle conveyors. The example is based on code from last year's competition that is freely available from the sourceforge websites (see www.sourceforge.net/projects/usarsim and www.sourceforge.net/projects/moast).

To run docking:

1. Start the VMAC1 world
2. Open 5 windows on your Linux or Cygwin system
3. In window 1,
 - a. Edit the "run" script and change the line "PRIM=no" to "PRIM=yes". Make sure that "VEH=no" and "SECT=no".
 - b. run the "run" script from the bin directory as: "run 1 unitLoader"
 - c. From the Admin prompt, type "init"
 - d. Type "sp"
 - e. Type "go"
 - f. Type "mob"
 - g. Type "dock"

The vehicle should now begin driving to the dock.

4. In window 2,
 - a. Run the factory Ctrl program (./factoryCtrl -h <your USARSim host)
5. In window 3,
 - a. Run the factory shell (./factoryShell)
 - b. Type "init"
 - c. Drop a box with "package BoxChute1"
6. In window 4,
 - a. Run the servoShell (./servoShell)
 - b. Type "eff"
 - c. Type "init"
 - d. Type "opcode 1 animate 3"

The vehicles rollers should now be spinning.

7. In window 5,
 - a. Run the nmlPrint utility to print the value from the RFID sensor on the back of the vehicle. Use `./nmlPrint -b servoSPRfid -p nmlPrint -i1 -forever`

When a tag is detected, it will print out the detection time and the tag information. The value on the second line of the printout is the package destination. Please look at this and see if we need to narrow the FOV of the sensor.

8. Back in window 3,
 - a. Type “speed Loading -3”

The package should move onto the unitloader’s back

9. Back in window 4
 - a. Stop the unitloader’s rollers with “opcode 1 animate 0”

To Run Vehicle Echelon with A priori:

The vehicle echelon utilizes *a priori* data to plan routes to named points based on visibility graph analysis. At this time, the routes are planned and passed to the AM echelon. However, the AM echelon is not adequately tuned to drive these routes with an Ackerman steered vehicle in the maze-like environment. Further work by teams will be necessary to fix this. To run the vehicle echelon, you must first edit the run script. There is a line in this script that is “VEH=no”. Change this line to “VEH=yes”. Then...

1. Start the VMAC1 world.
2. Open 1 window on your Linux or Cygwin system.
3. In this window, run the “run” script as: “run 1 unitLoader”
4. From the prompt, type “init”
5. Load the *a priori* data with the command: “load <path to data files>/VMAC1
6. You should notice several points of interest print out. You can plan to any of these with the command “go <close enough neighborhood> <point name>. Where <close enough neighborhood> is the error radius that the vehicle must achieve to the point and the <point name> is one of the named points printed in step 5.
7. To display the plan, type “dump 1 tif”. This will cause a tif formatted file to be generated for each planning cycle and displayed. You may also generate ppm file type.