

AGV Clever Unload

Target of this exercise is to deal with a real problem, which is an optimization of an already existing agv plant.

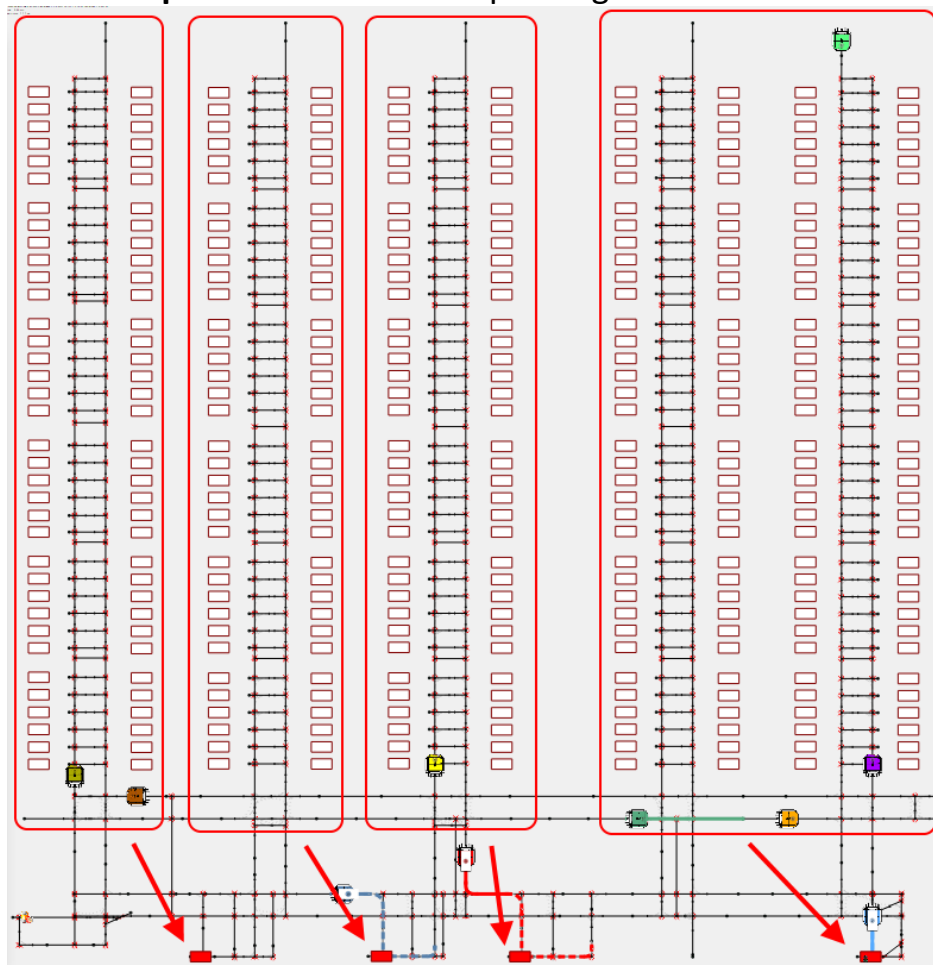
1. Tutorial 3

In order to do this exercise, you need to start from AGVM tutorial 3. In this sample you can see 10 agv working on a winder machine plant. There are 10 lines of winders (loading stations) and 4 “islands” sites (unloading stations).

Make the plant start, pay attention to the behavior of agvs and look for critical situations. Suggested agv emulation speed is 3.

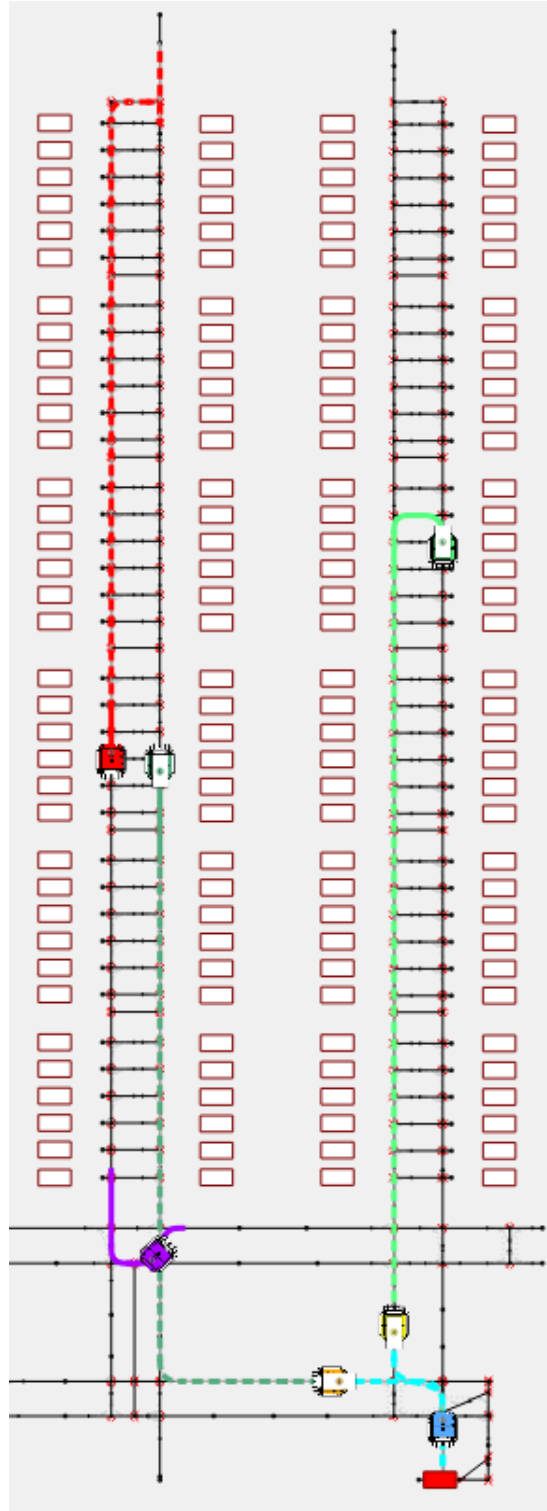
2. Island 4 crowded

Look at the system and understand how agv choose to go to download: every couple of winding rows has its related island below, but first two on the right share the same one, which is island 4. Look at **picture 1** to see an explaining scheme.



Picture 1 – Scheme of the plant and relationship between winding rows and islands sites

This situation will make island 4 to be very crowded, sooner or later. Keep playing with this sample and just wait for it. An example is shown in **picture 2**, here below: 4 agvs are now queuing to island 4, while a fifth one has just finished downloading and is going out.



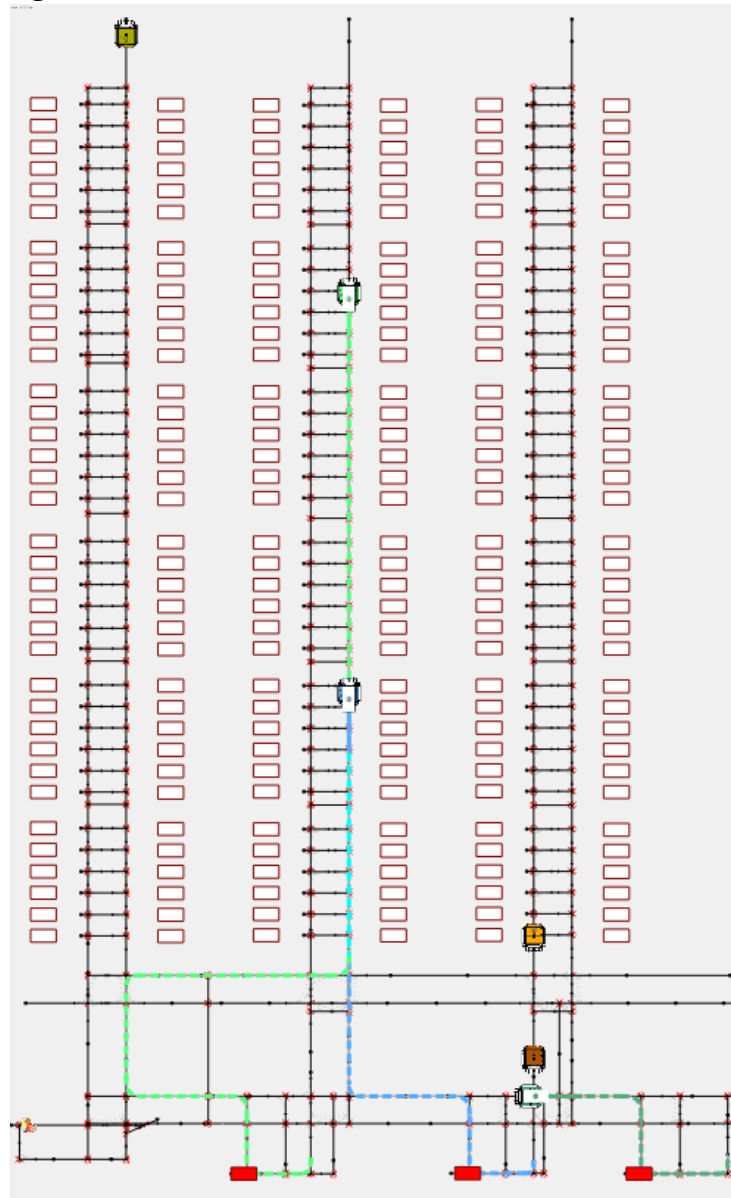
Picture 2 – 4 agvs are queuing to island number 4.

3. AGV Manager project

Task of this exercise is to find a clever solution to this real problem, apply and test it. After having observed the system, think about a solution, discuss with your agv teacher and then try to do it.

A good solution should act as shown in **picture 3**: dark green agv is going to right island site while blue agv is going to the middle one. Light green agv has just finished a loading mission and is looking for an island too. Which one does it choose?

The correct answer is the left one, because even if the distance is more, compared to the other two island sites, there is no other agv queuing to it; so the total time to complete its unloading mission will be less.



Picture 3 – good solution: each agv chooses the best unloading station (island site)