Manufacturing/Printing System Simulator
- a Design Fest proposal -
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Overview

We've provided four diagrams to describe our manufacturing system simulator: a diagram to describe the messages sent between the controller and the simulator, the class diagram for our system, and two sequence diagrams showing how a widget is injected into our system and how a widget transitions from a travel route through a waypoint (and hence how widgets move through our system.)

Assumptions

- Simulator runs in separate process or on separate computer from controller, communicating over stream sockets

- Waypoints operate autonomously, without constant direction from controller

- Controller can change behavior of waypoint at any time by sending a configuration message

- Scenario definition is read-in at runtime, describing waypoint and travel route topology and properties, sensor locations, and rate of simulation
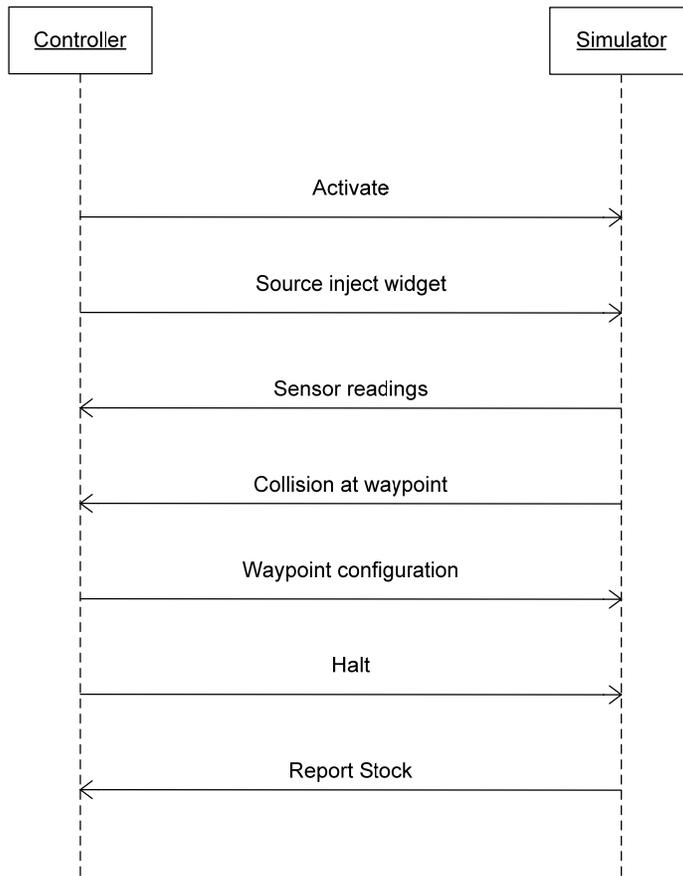
Controller   Simulator

Activate →

Source inject widget →

← Sensor readings

← Collision at waypoint

Waypoint configuration →

Halt →

← Report Stock

Figure 1. System-Level Communication.
   Note- this is a catalog of the messages between the
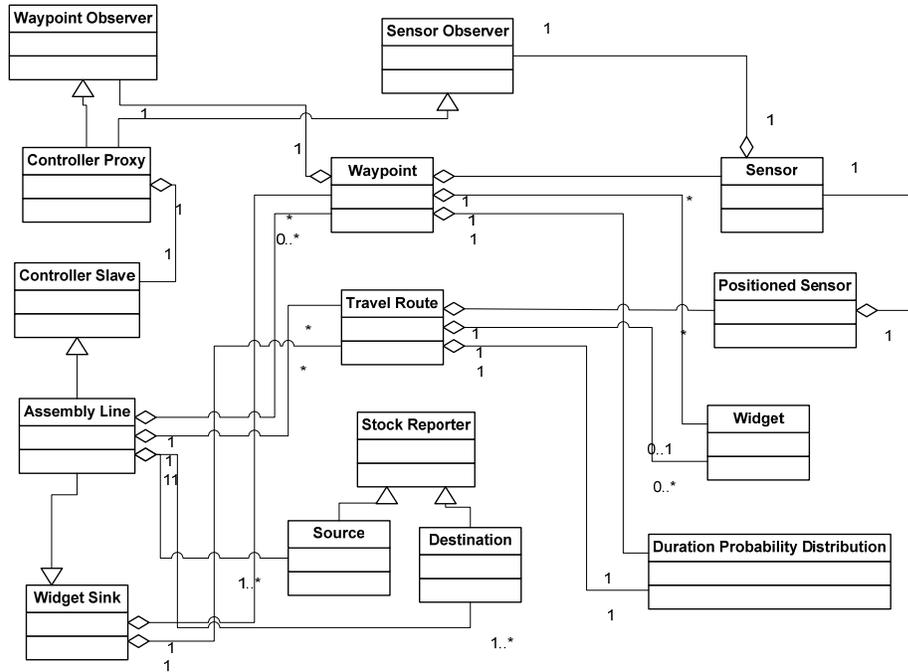controller and the simulator, **not** a sequence diagram.

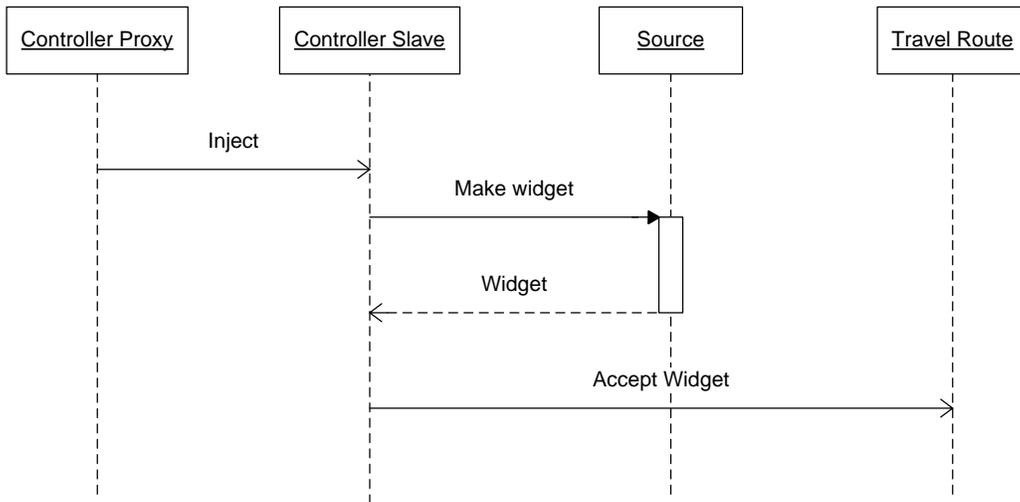**Figure 2. Manufacturing System Simulator Class Diagram**
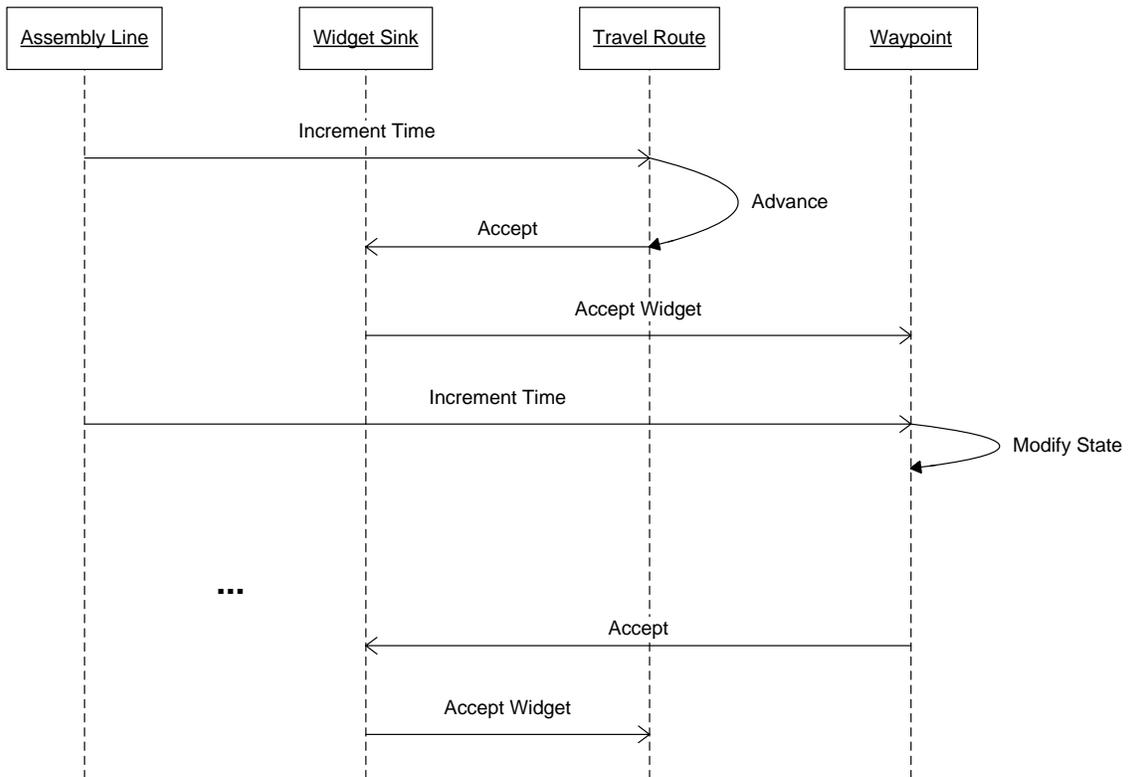
Figure 3. Source inject widget

Figure 4. Widget transition from Travel Route through Waypoint

Lessons Learned

- At the beginning it's difficult to "flow" when you don't know your team members

- The role of the moderator is quite important to assure the achievement of the objectives, especially at the beginning.

- You must speak very clearly when working with people from different technical backgrounds

- When everybody seems to not understand what you are saying, think about clarifying your idea, maybe you don't really understand it in the first place.

- When the time is limited, don't hesitate to call the domain expert, he could save you a lot of work and time.

- Someone from the DesignFest team should give you a brief introduction of the work to be done. Many ideas could be clarified from the beginning.