TerraSwarm

RoboCafé

http://terraswarm.org/

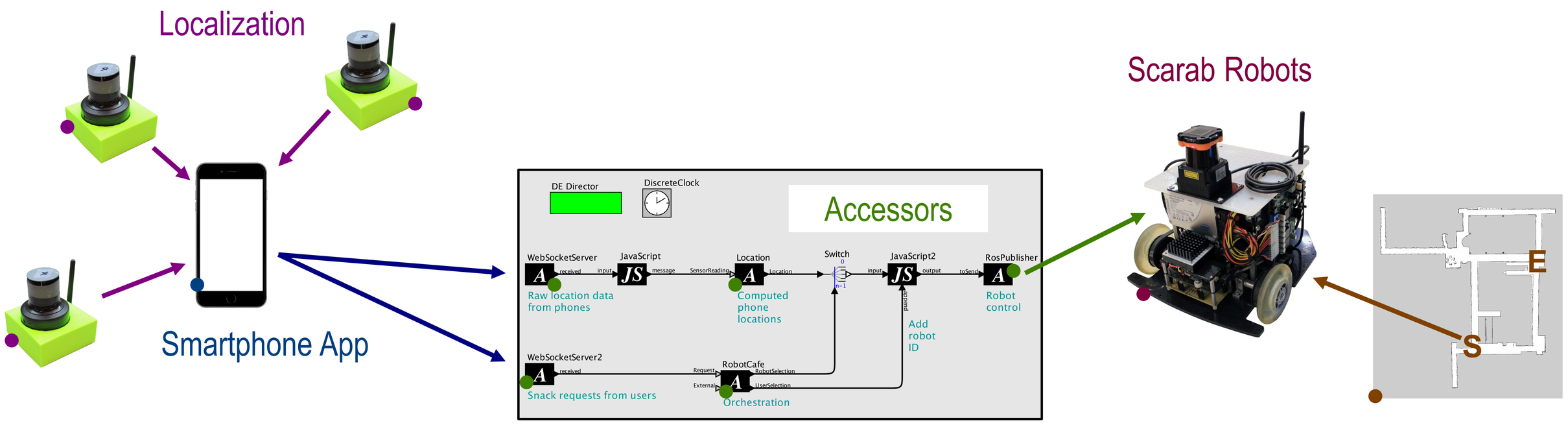
Wait, What? Demo

September 9-11, 2015

Robot Delivery Service at the Push of a Button

Indoor localization and autonomous robots combine to provide a seamless experience for on-demand snack delivery. A smartphone app provides a food and drink menu, and one click has the item delivered to you.

The ALPS ultrasonic indoor localization system provides precise location data of the smartphone while the user makes a selection. The location data and snack choice are fed to a nearby Swarmlet that processes the incoming data and dispatches a robot to the user's location. The robot uses a human-friendly navigation algorithm to find a path to the user and complete the delivery.



Technology

ALPS Localization

ALPS is an ultrasonic localization system that localizes unmodified smartphones to with 30 cm error. ALPS anchors can self-localize by walking a smartphone around a new space, lessening the burden of installing the system.

Accessors/Ptolemy II

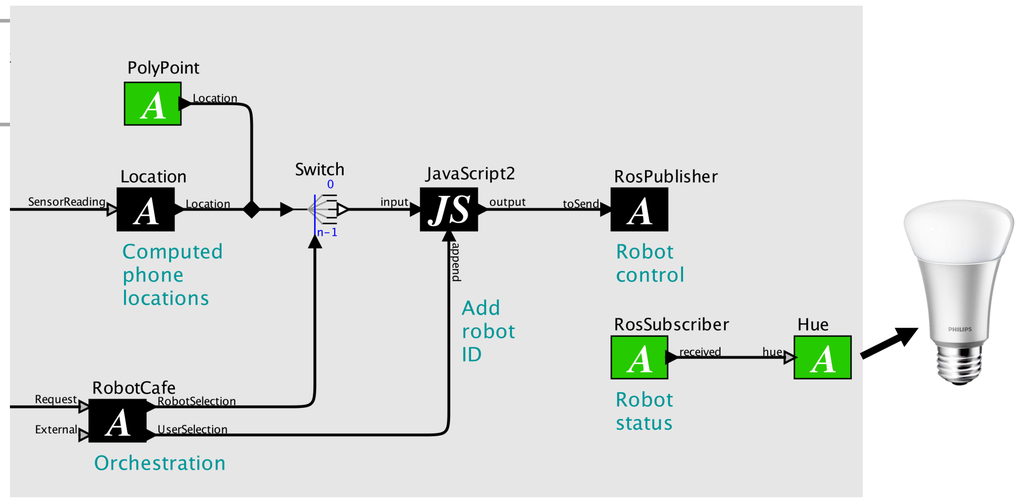
Accessors provide a sandboxed JavaScript environment for interacting with physical devices, including robots, smart devices, and other networked devices. They execute inside of the Ptolemy II modeling and simulation tool.

Scarab & Navigation

Scarab robots are relatively low-cost ground robots that run the open-source ROS operating system for robots. They use "human-friendly" navigation to follow a path while avoiding people in the same space.

Reconfigurability

Using Accessors and a Swarmlet provides a GUI based editor for easily reconfiguring how the application runs. Adding status indications or alternate localization services is simply a matter of dropping in new Accessors, connecting the ports, and re-running the Swarmlet.



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