



FODHawk: 737 Advanced Manufacturing FOD Collection AGV

Project Goal

- . Create an autonomous ground vehicle (AGV) that will remove foreign object debris (FOD) from the Boeing 737 Final Assembly Facility.
- . Assist mechanics in cleaning - help mechanics focus on building the airplane instead of cleaning.

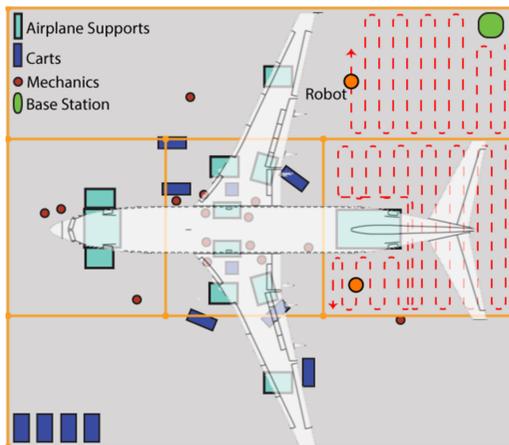
Factory Environment



FODHawk is designed to operate in the wing-to-body join section of the Renton, Wash., 737 Final Assembly Facility. The factory is a challenging environment for a robot due to the hard to reach spaces and many dynamic obstacles.

The Final Result

NAVIGATION



- . Multiple robots working in parallel to cover more area
- . Pre-planned path around the floor with compensation for avoiding obstacles
- . Beacons to aid in localization

USER INTERFACE

- . Flashing lights and music capabilities to alert mechanics of robot's presence
- . Indicator lights to display the robot's battery level, navigation mode, FOD level, etc.

FOD COLLECTION

- . System of brushes and vacuum to lift FOD off of the ground
- . Easy-to-remove collection bin
- . Extender arm to reach under carts
- . Able to pick up items such as bolts, chips, plastic, or other large objects



SENSING

- . Onboard camera, Lidar, IR sensors, and limit switches to ensure safety



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Picture Source: <http://www.boeing.com/boeing/companyoffices/gallery/images/commercial/737700-11.page>



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SCOPE

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