TATA ELXSI

Intelligent robotic vacuum cleaner that can detect and avoid obstacles

SCOPE

- Machine vision for object recognition (obstacle detection), optimized cleaning, benchmarking of algorithm
- Detection and avoidance of wires, carpets, fallen objects, pedestal legs
- Person avoidance
- Data set generation
- Mapping, path planning and navigation
- Test environment setup inline with end product environment

CHALLENGES

- Detection performance improvement from 0.2 fps to 2.2 fps on Qualcomm board
- Meeting memory and performance requirements
- Data set collection, cleansing, and segregation
- Optimization of algorithm to run on an embedded system

TOOLS AND TECHNOLOGIES

- OpenCL
- TensorFlow

AI BASED NAVIGATION FOR OPTIMIZED CLEANING
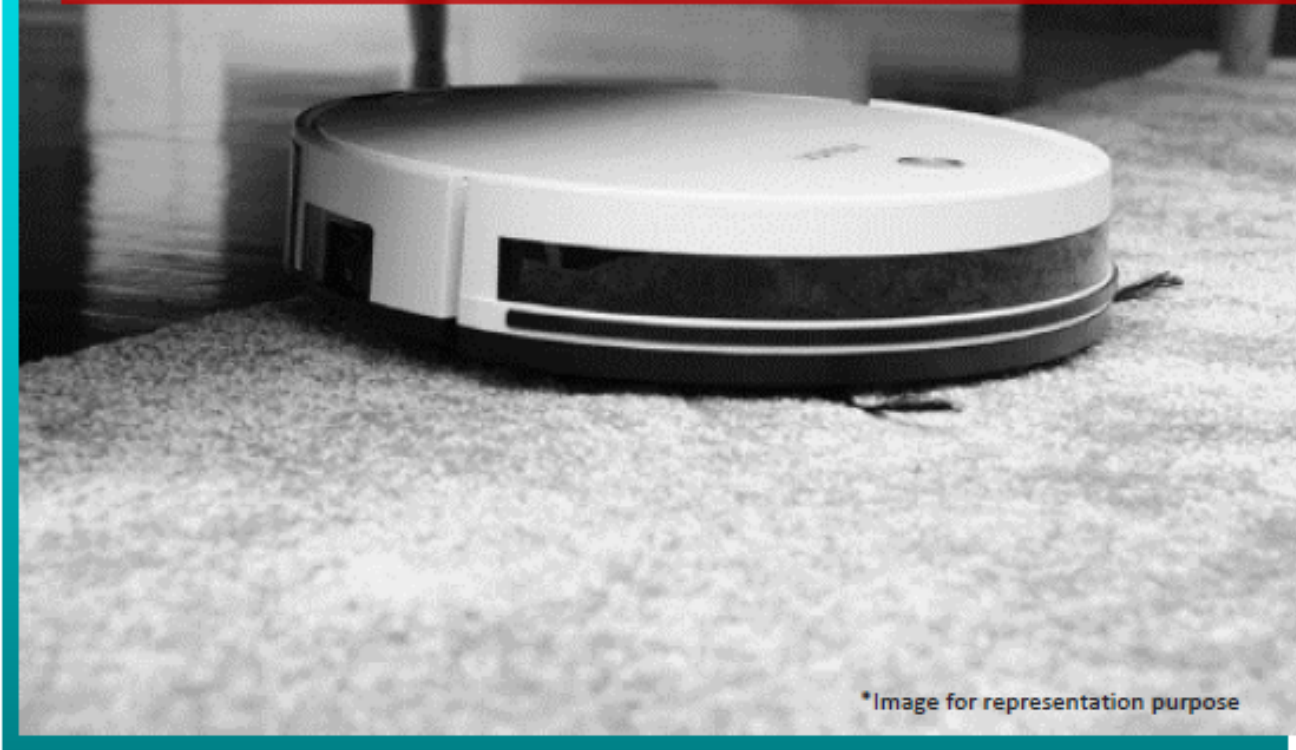
*Image for representation purpose

AI engine Accuracy	Market	Delivery Model	Product phase
90%	Japan	ODC	In testing