



Seegrid Industrial Mobile Robots: Using Vision Guidance for Navigation in Extraterrestrial Applications

Space Manufacturing 14
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SEEGRID
CORPORATION

Industrial Mobile Robots

- A Little History
- Application Space
- Technology
- Challenges
- Opportunities

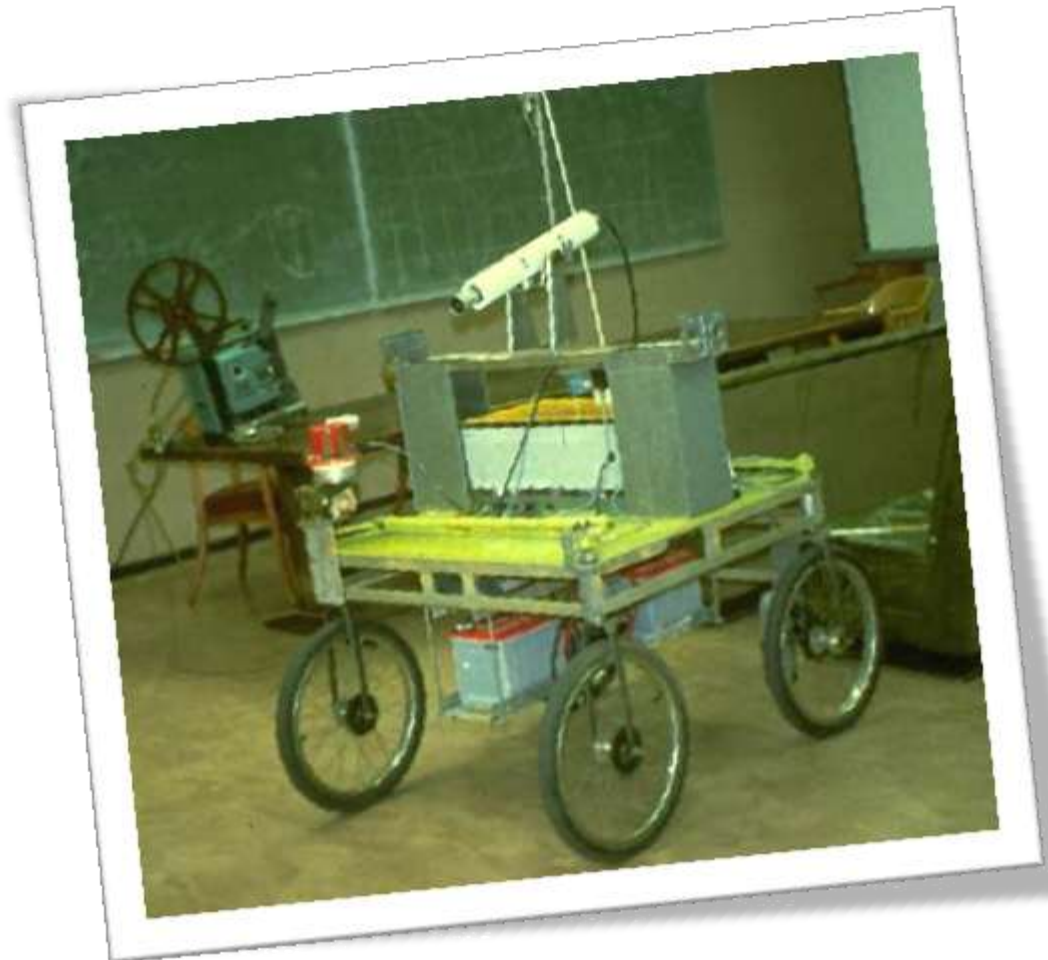


What is an IMR?

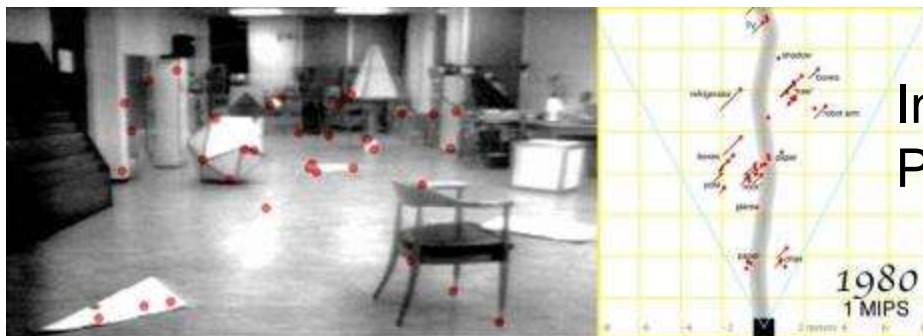
- ***Industrial Mobile Robot***
- Uses onboard intelligence to cooperatively move materials in an industrial work space
- No infrastructure modifications or additional equipment needed
- Leverages advances in computing power



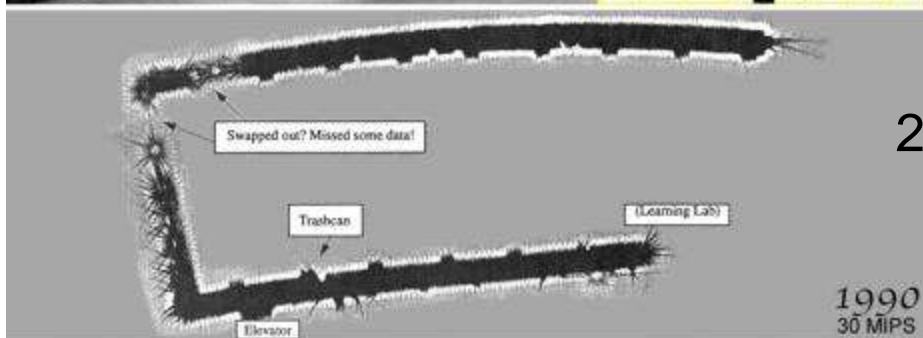
Seegrid Beginnings



Vision Navigation to 3D Grids



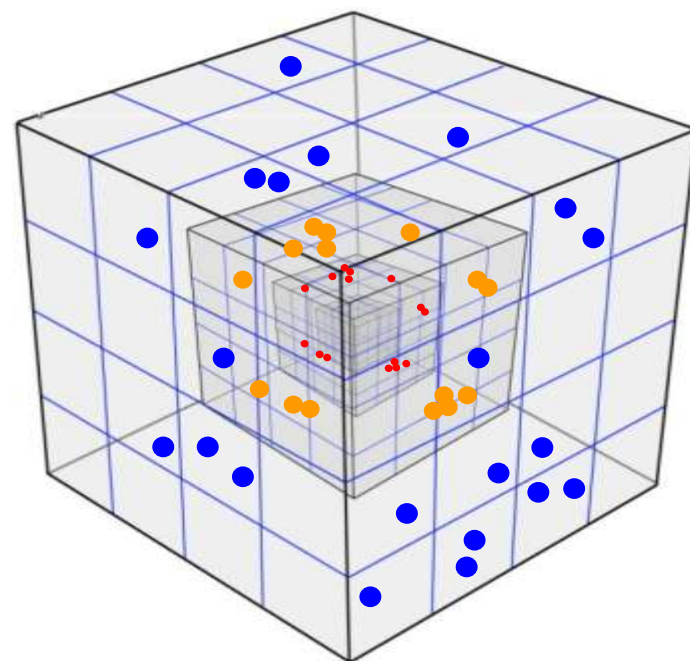
Individual Points



2d maps



3d maps



Industrial Mobile Robot – Seegrid GP8



Application Space: “Picking Aisle”



Valley

Cross Aisle



Base Ops

Factory



Field Ops



Bulk Warehouse



Plains

Narrow Aisle



Canyon

How it Works

2 -- Build Model



1 -- Walk Through, Collect Data

3-- Then Work

Stereo Features





Outdoor Testing



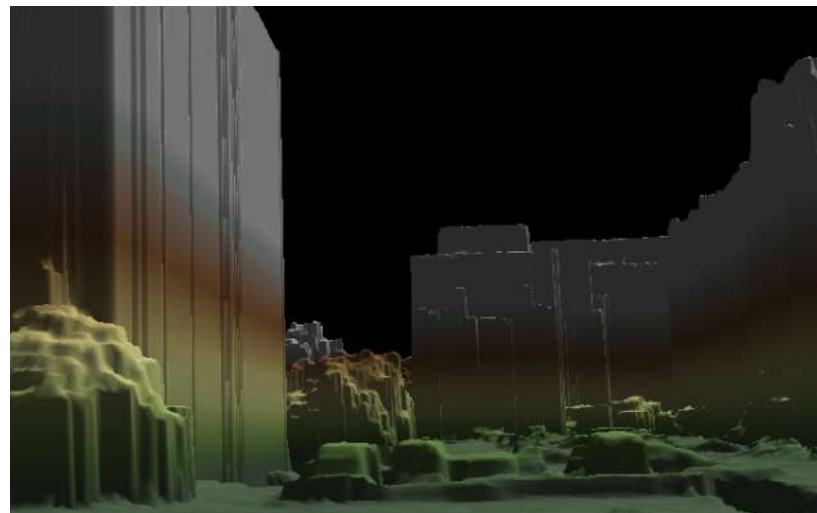


Outdoor Guidance Research





Mapping from Independent Data





- No Localization Infrastructure (GPS, Beacons)
- Hostile Environment – Mapping Challenge
- Variable Environment



- “Offline” Mapping
- Mission Planning
- Autonomous Operation and Exception Handling
- Variety of Environments



Thanks