

STINT-KOSEF

Sweden/Korea workshop proposal

Hardware at KTH relevant to proposals

The Centre for Autonomous System (CAS) at KTH has a number of mobile robot platforms. The three that are most relevant to the things suggested in the proposals for the STINT-KOSEF-Sweden/Korea Workshop are presented below.

1 Dumbo

Dumbo is a ActivMedia PowerBot platform and is shown in Fig. 1. The main characteristics of Dumbo are:

- Differential drive base with large payload
- 6 DOF arm made out of Amtec modules
- Canon VC-C4 pan/tilt/zoom camera (see mid Fig. 1)
- Firewire camera at the end-effector of the arm
- Videre design stereo camera system (see right Fig. 1)
- SICK LMS200 laser scanner
- Sonar sensor and bumpers
- Intel Pentium 4 CPU 2.40GHz

Dumbo is with its large payload and many different sensors an ideal platform for experiments in for example visual SLAM.

2 Minnie

The robot Minnie is an ActivMedia Performance PeopleBot and can be seen in Fig. 2. The main characteristics are:

- Differential drive base

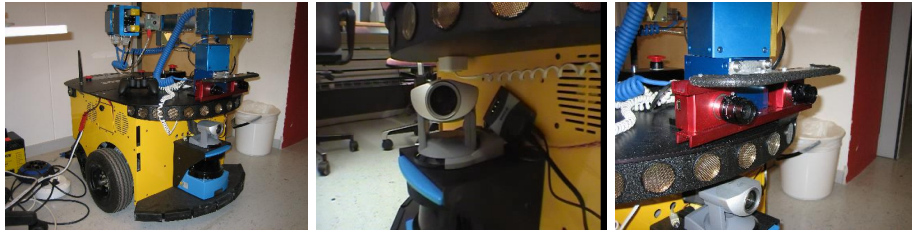


Figure 1: Dumbo is a PowerBot platform from ActivMedia.

- Canon VC-C4 pan/tilt/zoom camera
- SICK LMS200 laser scanner
- Sonar sensor and bumper
- Color touch screen

Minnie is much less intimidating than Dumbo and not as heavy. The main purpose of this robot is for research on interaction with humans.



Figure 2: Minnie is a Performance PeopleBot from ActivMedia

3 Pluto

The true test for many algorithms is to take the step outside where the environment is not as structured as indoor. For this purpose the robot Pluto is ideal (see Fig. 3). Pluto is of type ATRV2 and was manufactured by iRobot. Pluto's main characteristics are:

- Rough terrain platform with skid steering

- SICK LMS291 laser scanner on pan-tilt unit
- Webservice camera mounted on laser scanner
- 6-axes gyro and accelerometers
- DGPS
- Sonar sensors
- Dual Pentium III 800MHz

Pluto can carry a lot of payload as well and it would be possible to mount the stereo head normally on Dumbo for some experiments outdoors.

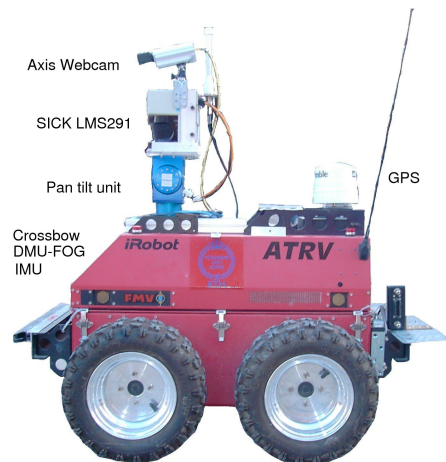


Figure 3: Pluto is an ARTV2 platform from iRobot

4 Two camera rig

In addition to the mobile platforms we also have a two camera rig with a perspective camera and an omnidirectional camera. This setup has been used to collect data in three different labs across Europe. In each location data has been collected synchronously from the two cameras and under varying weather conditions. Along with the data there is also odometry and laser scanner data. A similar dataset consisting of images from the Canon VC-C4 cameras on Dumbo and Minnie can be downloaded from <http://cogvis.nada.kth.se/IDOL>