

Autonomous mobile robot teaching laboratory const

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1. Introduction to the program

The self-mobile teaching laboratory construction program is tailored by the teaching and research robot expert, the silicon experimental and practical teaching related to professional mobile robots such as robots.

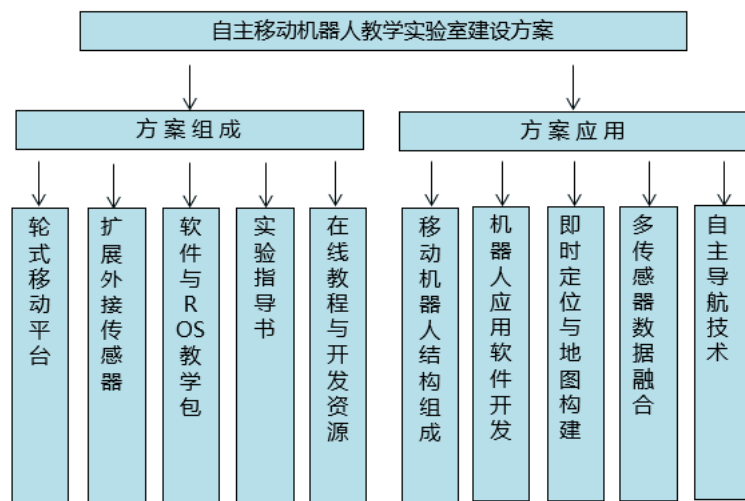


Figure 1 Mobile Robot / Intelligent Unmanned Vehicle Teaching Lab Solution

The autonomous mobile robot teaching laboratory construction plan (Fig. 1) consists of several wheeled mobile robot teach (such as GaiTech E100 , TurtleBot, etc.), extended external sensors (such as RGBD sensors, laser radar, sonar, etc.), software and ROS 1 packages, experimental guides and online tutorials and development resources, can be used for mobile robot structure and working principle, application software development, real-time positioning and map construction (SLAM), multi-sensor data fusion, autonomous navigation etc. Practice and practical teaching.

2. Program composition and characteristics

The mobile platform of the autonomous mobile robot teaching laboratory selects the GaiTech E100 (Fig. 2), a multi-purpose mobile robot developed for the experimental teaching of mobile robots . GaiTech E100 has a solid hardware platform and powerful computing power, advanced navigation algorithms, fully supports the robot operating system ROS , and can be connected to Lidar, RGBD camera, camera, sensors, with good scalability. In addition, the GaiTech E100 also supports cloud control, allowing users to remotely control one or more robots in different locations over the Internet .

Gaitech E100

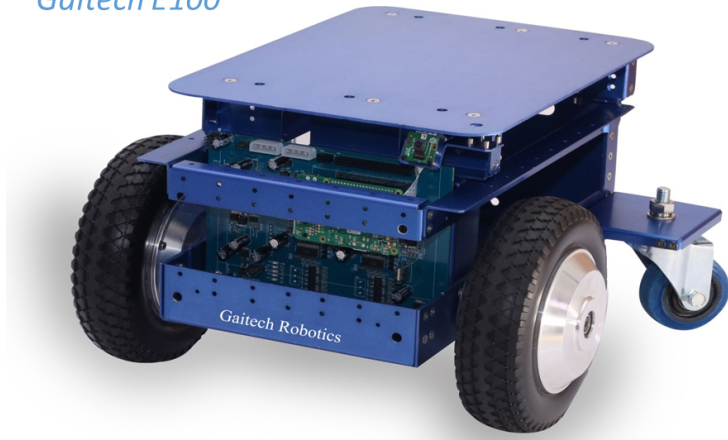


Figure 2 Gaitech E100 mobile robot teaching platform

2.1 Features and advantages

As a mobile platform for mobile robot experiment teaching, Gaitech E100 has the following features and advantages:

- | **Solid hardware platform**
- | **powerful computing performance**
- | **Advanced navigation algorithm**
- | **Flexible synergy**
- | **abundant power supply**

3. Program application

The self-mobile robot teaching laboratory construction program can provide users with different types of experimental projects, comprehensiveness, design and innovation, which can meet the basic experimental teaching, curriculum design, graduation design, entrepreneurship practice related to mobile robots. The experimental / practical teaching needs of different links .

4. Applicable majors and courses

The application of the autonomous mobile robot teaching laboratory construction program and the curriculum are as follows
Table 1 Applicable majors and courses

适用专业	适用课程
<ul style="list-style-type: none">● 机器人工程● 机械电子工程● 微电机系统工程● 车辆工程● 仪器科学与技术● 物联网工程...	<ul style="list-style-type: none">● 机器人学导论● 机器人机械系统● 机器人控制技术● 机器人视觉与传感技术● 机器人操作系统ROS● 嵌入式系统设计● 物联网组网技术...

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