Bachelor/Master Arbeit

Autonome Eismaschine
Autonomous Ice Resurfacing Machine

The goal is to develop, implement, and test a laser-based navigation system to make an ice machine autonomously resurface an ice-hockey field. The task involves map building, the navigation on the field in a pre-defined pattern, see Figure below, the detection and avoidance of obstacles such as the goals, persons or another ice machine, and an interface to the user. The work will be supported by the company developing the autonomous navigation system.

Figure: Example of ice machine for resurfacing (left) and possible motion pattern (right).

Tasks
- State of the art in using laser sensors for accurate navigation indoors
- Design sensor concept for safe robot and future certification
- Design an intuitive and easy-to-use interface
- Develop methods to map the environment, navigate the robot and detect and avoid obstacles
- Implement and test the developed method

VORAUSSETZUNGEN
Good programming skills (C++ preferred), it will be helpful to have knowledge about ROS Apply to Markus Vincze (vincze@acin.tuwien.ac.at)

Duration and start
Starting now. 6 month. Work mostly at home, until the situation becomes clear; tests on icefields will be conducted http://www.acin.tuwien.ac.at/forschung/v4r/;

Option for continuing the work on the project after finishing Master/Bachelor theses.

Working hours and funding
To be agreed with the company.