**Appendix: CoSpace Theatre Competition Platform Requirement**

## 1.     Real robot

The communication between real robots, virtual robots, and virtual environment is shown in Fig. 1.
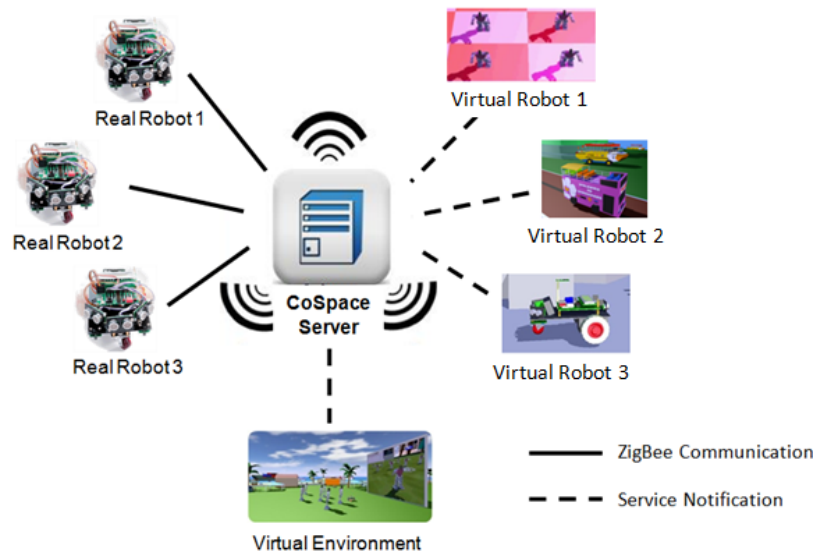


Fig. 1: Communication

In order to communicate with the virtual objects, including virtual robots, in the virtual environment, the real robot must be equipped with a controller board which supports serial communication.

- If you wish to design your own robot with your own controller board, please make sure that the real robot must be equipped with a controller board which supports serial communication. Teams can follow the communication protocol provided to setup the communication. It will be released to teams together with the CoSpace challenge platform.

- Advanced Robotics and Control Centre (ARICC) provides two types of controller board for teams. They are able to support various sensors and motors as well as Lego products. If teams wish to use the controller board developed by the ARICC, please refer to http://cospacerobot.org/en/cospace-platforms for details.

- To help RCJ participants without real robots to participate in the CoSpace Dance Challenge, the Artificial Robotics and Intelligent Control Centre (ARICC) will provide limited sets of Tribots as in Fig.2 on site for teams. Teams may decorate the robots to suit the performance theme.
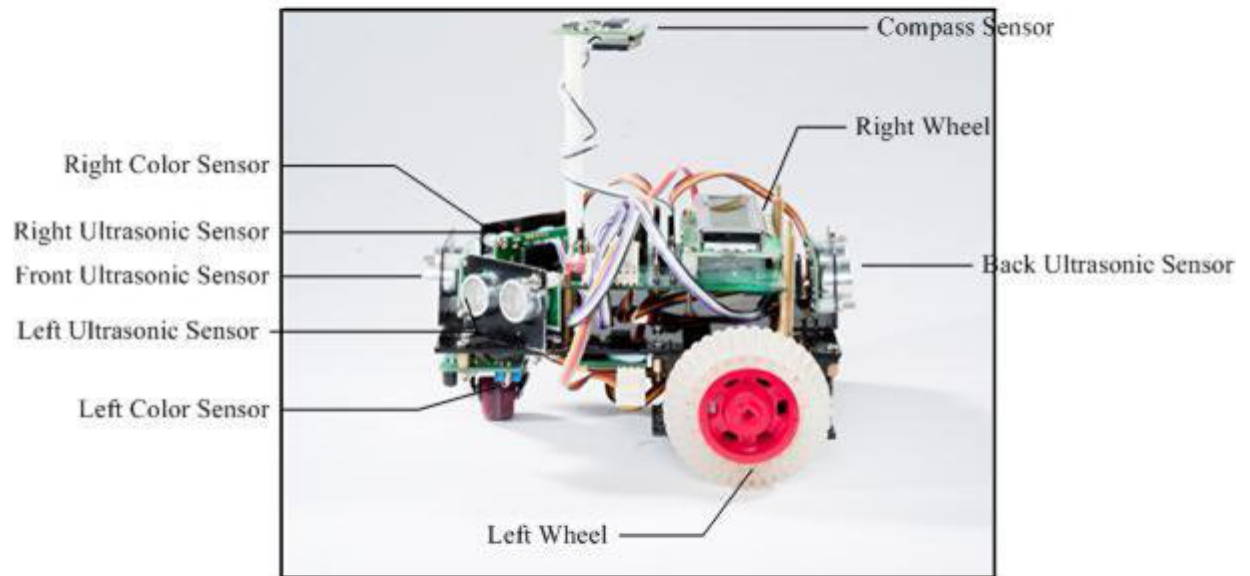
Fig. 2: Tribot

## 2. **Computer System**

- CPU: Intel i5 2.8GHz and above

- Memory: 4GB DDR3 RAM

- Graphics Card:  Support for DirectX 9 graphics with 1 GB of graphics memory (non-integrated with motherboard)

- Operating System: Window 7

The CoSpace Theatre Challenge Simulator is powered by Microsoft Robotics Developer studio. It operates in the Window environment.