SRS
Multi-Role Shadow Robotic System for Independent Living

Small or medium scale focused research project
(STREP)

Contract number :	247772
Project acronym :	SRS
Project title :	Multi-Role Shadow Robotic System for Independent Living

SRS UI_PRI (iPad) User Interface User Guide

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Coordinator: Cardiff University

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Hardware requirements

Compatible with iPad and iPad 2

Software requirements

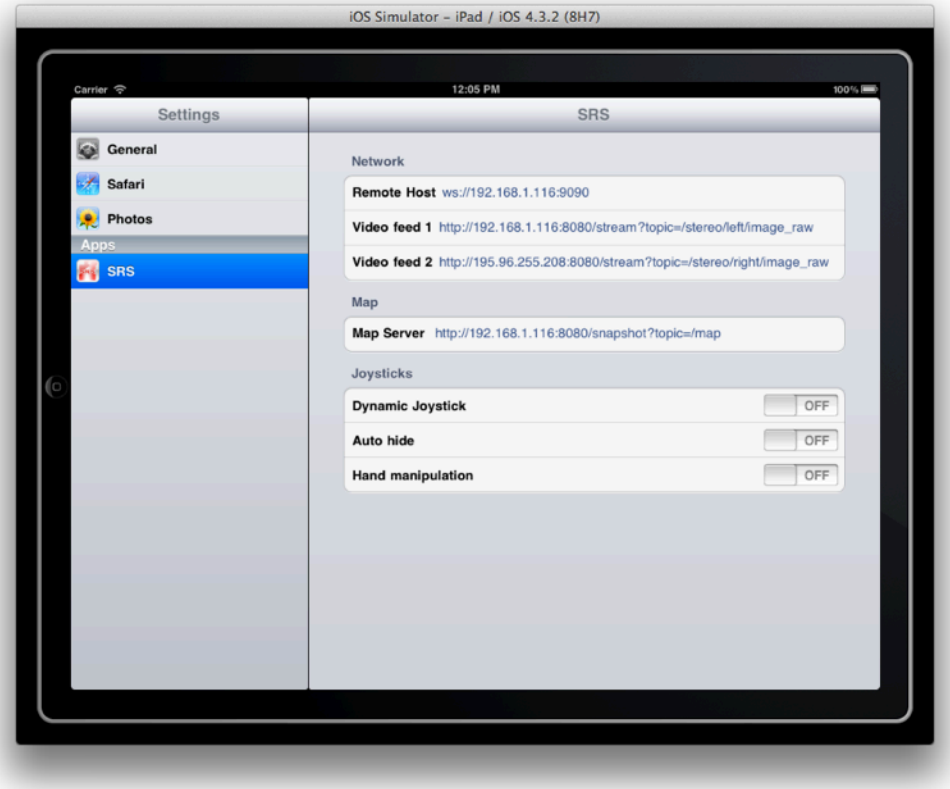
iOS 4.2 or later

Prerequisites

The following packages must be installed and running either on Care-O-Bot or in simulation

Name	Status	Description
srs_decision_making	mandatory	Decision making service
srs_mixed_reality_server	mandatory	Mixed reality server
srs_human_sensing	optional	Human sensing using robot sensors
rosbridge	mandatory	Communication between iPad user interface and Care-O-Bot

Configuration



Network setup

Remote Host	Remote Host specifies the address of the rosbridge package ws://IP:9090 where the IP is the address of the remote machine
Video feeds	Video feeds specifies the address of video stream provided by Mixed Reality Server http://IP:8080/stram?topic=VIDEO_STREAM where IP is the address of the remote machine and VIDEO_STREAM is one of the provided video streams (for example / stereo/left/image_raw or /stereo/right/image_raw

Map Server

Map server	Map Server specifies the address of the map server provided by Mixed reality server http://IP:8080/snapshot?topic=/map where IP is the address of the remote machine running Mixed reality server

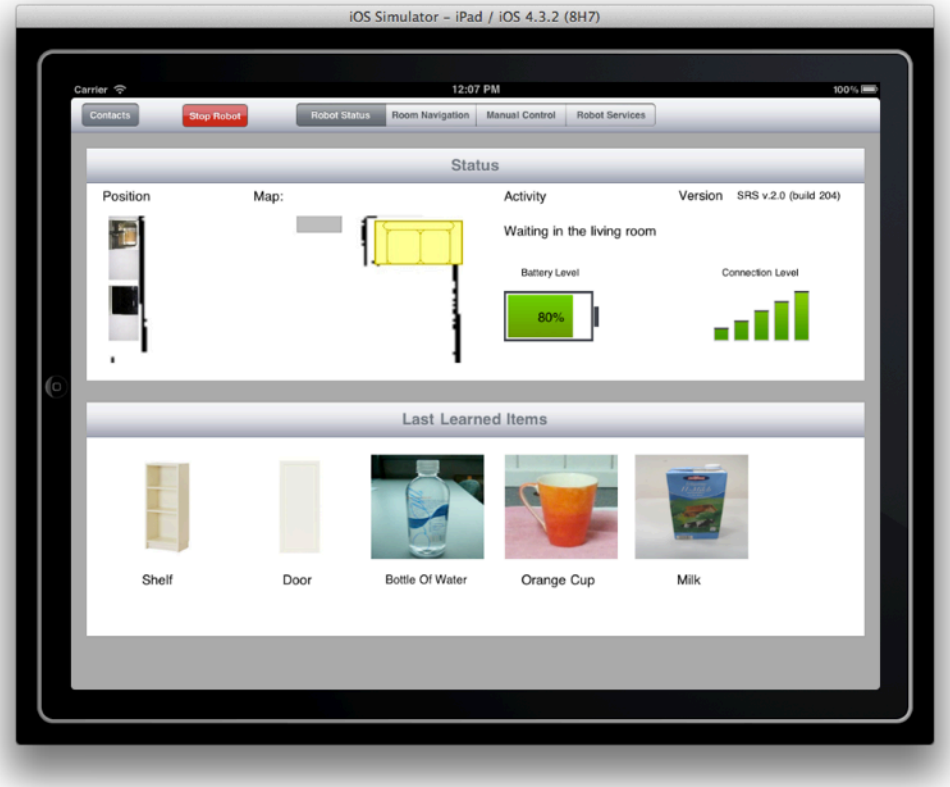
Joysticks

Dynamic Joysticks	Joysticks position can be dynamically adjusted on screen. To move joystick to a new position turn this ON, then hold on a new position for 2 seconds
Auto hide	Dim joystick controls when not used
Hand manipulation	Hand manipulation joystick control

Robot status

Overview

Robot status screen provides the following information



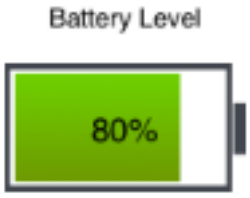
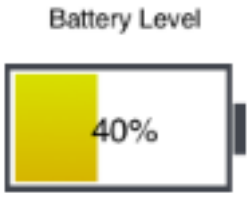
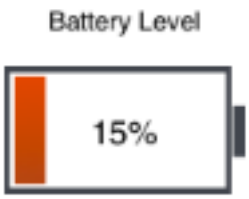
Map

Provides overview of the current active map as well as robot position

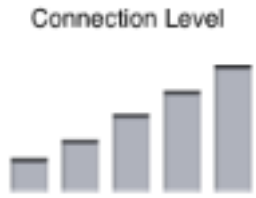
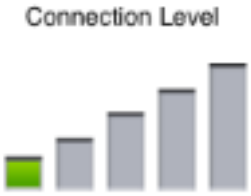
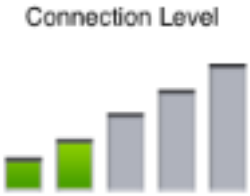
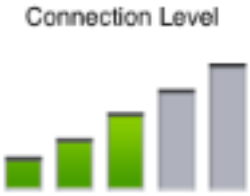
Activity log

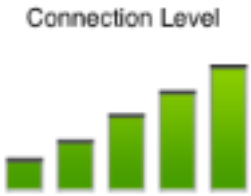
Activity Waiting in the living room	Shows the latest activity or notification message from the robot

Power meter

Value	Description
	Battery level above 50% is shown in green
	Battery level between 30% and 50% is shown in yellow
	Battery level below 30% is shown in red

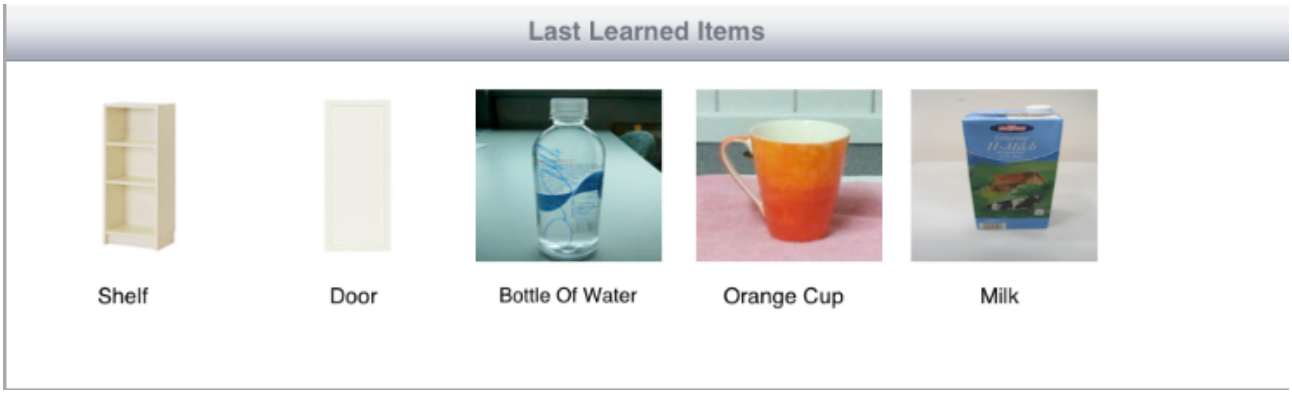
Connection level

Level	Description
	0 bars - no connection to the robot
	1 bar - very weak connection to the robot, video streams, db updates will not function
	2 bars - weak connection to the robot, video streams might work with big delay
	3 bars - average connection, video streams, other functionality might work with delay
	4 bars - good connection, video streams, other functionality might work with minor delay

Level	Description
	5 bars - excellent connection, video streams, other functionality will work without delay

Last learned objects

Shows the list of the latest objects downloaded from the objects database

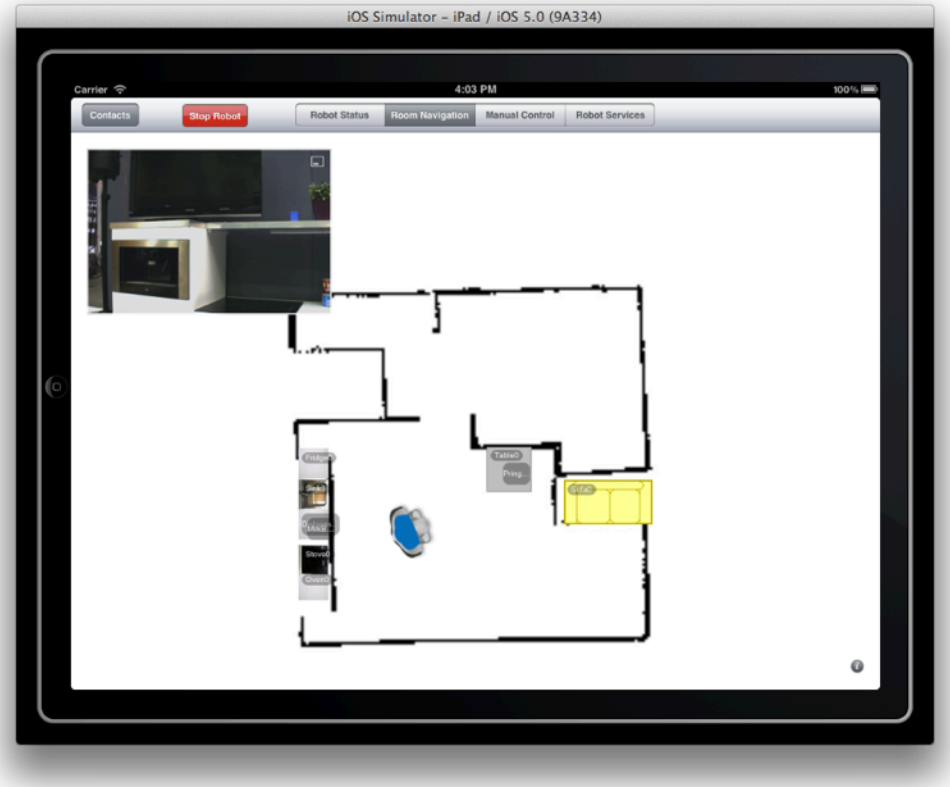


Room navigation

Overview

Room navigations screen provides information about current location of the robot, surrounding objects, human detected on the map as well as video stream from the robot camera.

All robot tasks can be executed from this window, including sending to location, detecting and grasping an object, etc. The map is real time augmented with objects detected and stored into objects database.



Video stream

Video stream shows the current video feed from the robot.

To move the video stream window around the screen hold one finger over it for about 3 seconds until it pops up then move the finger around, dragging the window to the desired location.

To change the size of the window click on the size button in the top right corner, the resize it using the anchor points.

Sending the robot to location

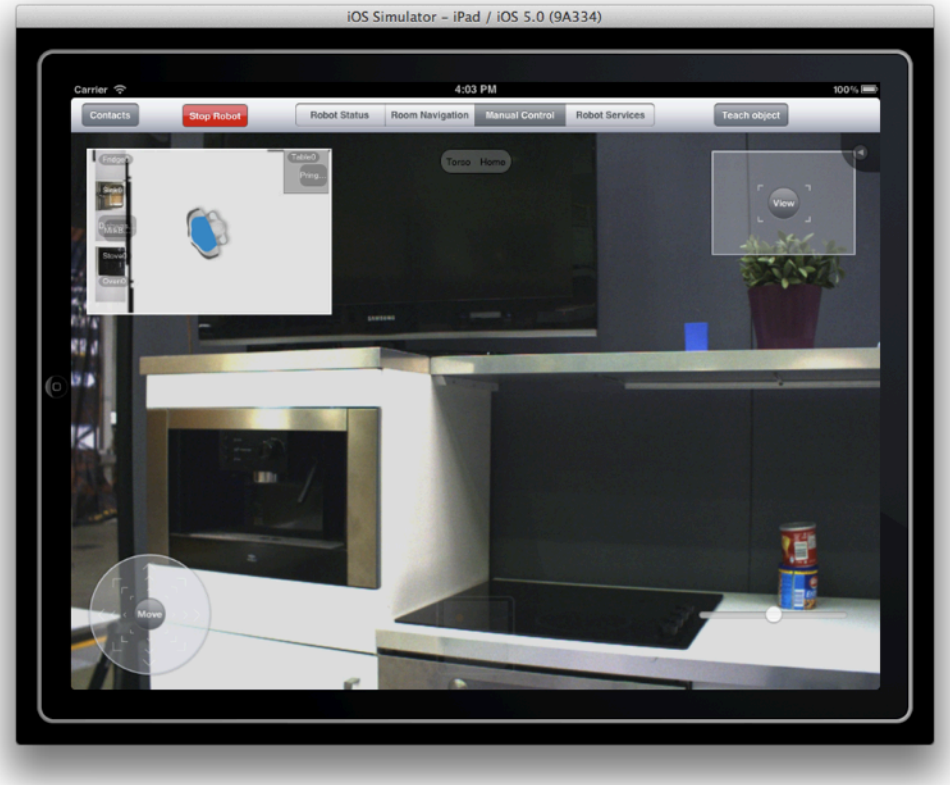
To send the robot on desired location click on the map and then confirm the location. In case of accidentally clicking on map, cancel request.

Manual control

Overview

To move the map window around the screen hold one finger over it for about 3 seconds until it pops up then move the finger around, dragging the window to the desired location.

To change the size of the window click on the size button in the top right corner, the resize it using the anchor points.



Navigation joystick

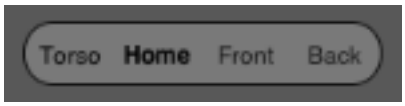
Allows driving the robot in all directions

Turn control

Allows turning the robot around itself in clockwise and counter clockwise directions.

Torso control

Setting the robot torso in one of the predefined positions - Home, Front and Back



Camera control

Controlling camera position

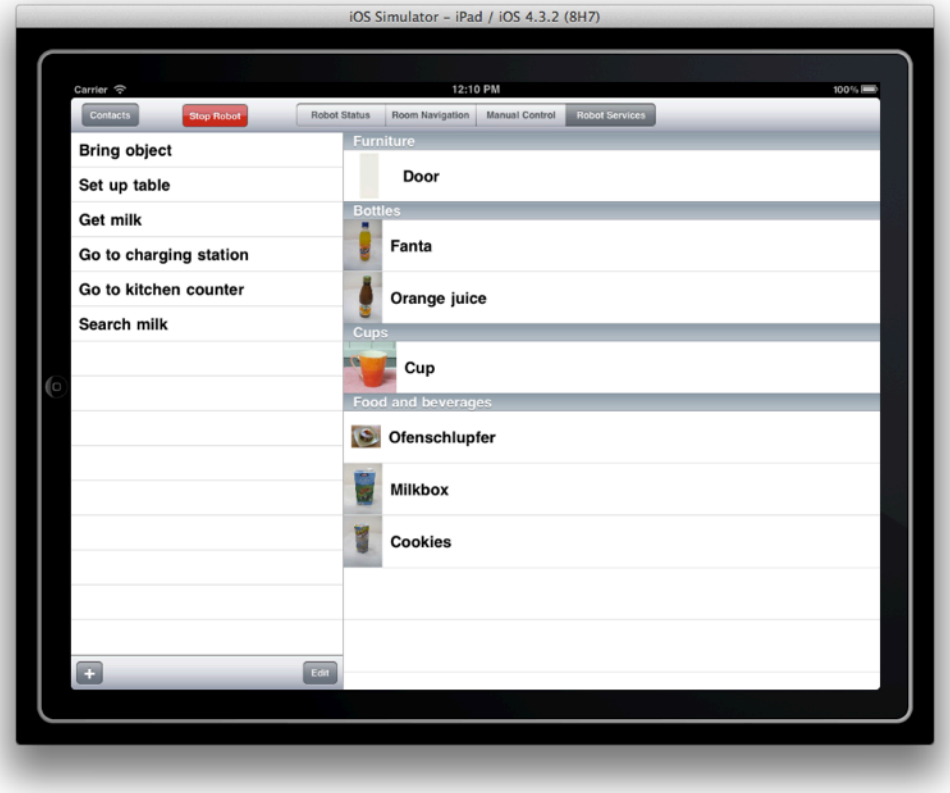
Tray Control

Outlines if there are objects on the tray

Robot services

Overview

Robot services screen allow execution of tasks, editing available tasks as well as creating new ones, and executing actions on available objects.

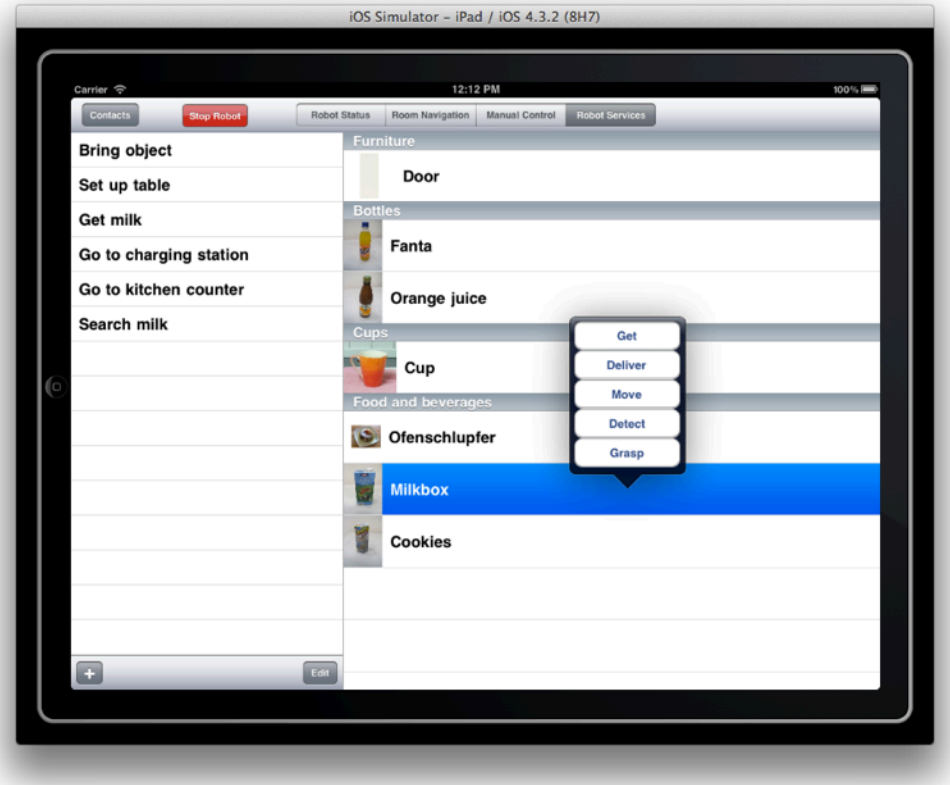


Executing tasks

Select one of the available task on the left panel to execute it.

Executing actions on objects

To execute an action on object select the object and then select one of the available actions - Get, Deliver, Move, Detect, Grasp.
Note that available actions menu is context sensitive and not all actions are available on a given object.



Task editor

To create a new task click “+” button on the task panel and enter the following:

Parameter	Description
Task name	Task name
Action	Action to be performed
Object	Object to be used
Location	Location of the task