ERL Consumer Service Robots
Test Bed Certification

IDEAAL Living Lab

Test bed name: IDEAAL Living Lab

Test bed web page URL: https://ideaal.offis.de

Name of Institution where test bed is hosted: OFFIS Institute for Information Technology. Escherweg 2, 26121 Oldenburg, Germany.

Designation of the lab/department/group where test bed is located: Division Health

Name of responsible person: Dr. Max Pfingsthorn, Dr. Frerk Müller-von Aschwege

Contacts of responsible person:
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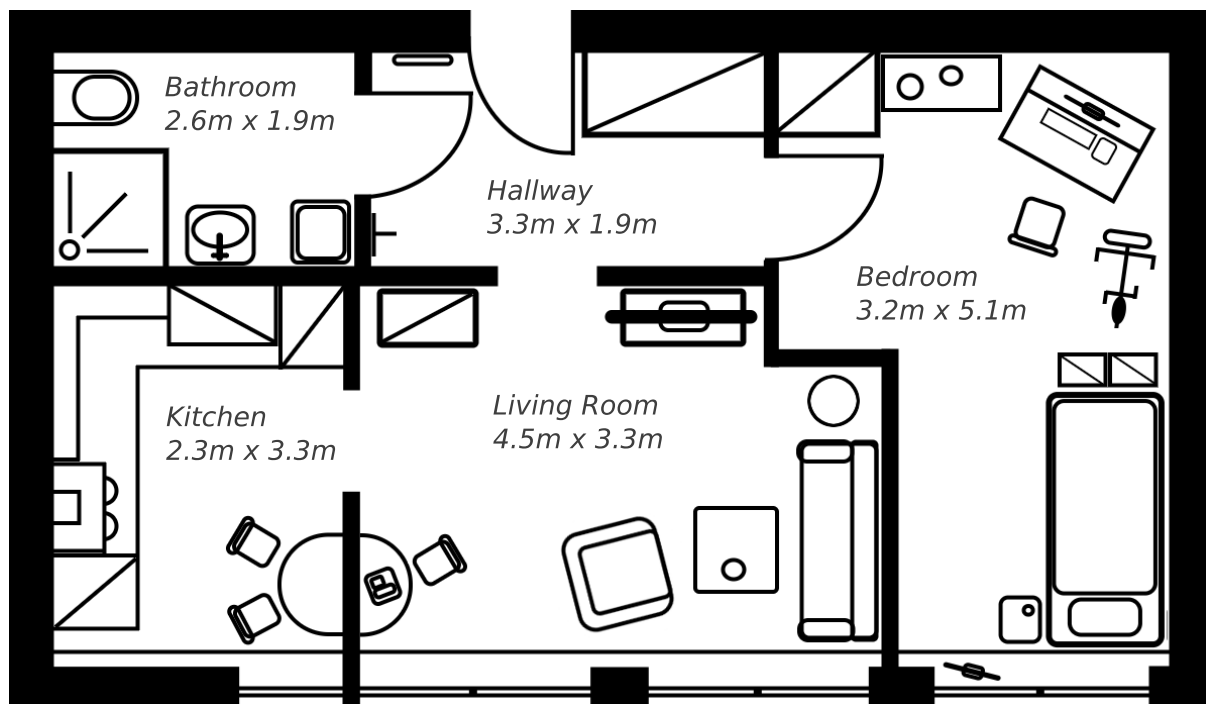
Pictures with overview of the test bed

Short description of the facility, including the type of furniture used, wall materials, available objects and robot platforms

The IDEAAL Living Lab was designed as a realistic simulation of an apartment inhabited by elderly people. The lab is fully functional, also for long term studies, with a fully working kitchen and bathroom. It is also instrumented with various sensors, microphones and cameras to document scientific studies.

To ease integration of new technology and demonstrators, the walls are made of plaster and the lab has a double ceiling. Most electronic equipment in the lab (door sensors, motion sensors, lights, TV, speakers, etc.) can be accessed or controlled via a central OpenHAB instance. Each room is fitted with at least one IP camera and microphone, including one camera in front of the entrance, for easy remote monitoring.

Test bed layout, including dimensions, areas and room designations

List of home automation devices available, including photo, make, model and main features

- 30 lights (dimmable)
- 18 power outlets (switchable)
- 11 motion sensors
- 11 door position sensors (6 of them in cupboards)
- 10 wall-mounted push buttons (e.g. light switches, "all off" action button)
- 2 roller shutter actuators for window blinds
- 1 door bell
- 1 mobile button
- 1 smoke alarm
- many other sensors and actuators (water sensors, powerline measurements, weather data, sensors from medical appliances, media input/output, temperature, etc.)

Motion Capture (MoCap) system available (make, model, and main features) if any

No motion capture system integrated at the moment.

Other relevant information

The interior of the IDEAAL Living Lab was designed by a small panel of elderly people. Care was taken to achieve a high level of practical realism for representative studies. The lab is also the home of many technology demonstrators developed in past research projects at OFFIS. Around 300 people visit the IDEAAL Living Lab each year in guided tours and during outreach events.

Current list of TBMs and FBMs for which the test bed is certified (i.e., meets both the rulebook specifications and has available the required devices).

Benchmark	Minimum required system / devices	Available in Test Bed
TBM1: Getting to know my home	RSBB	Yes
TBM2: Welcoming visitors	RSBB, IP camera at entrance	Yes
TBM3: Catering for granny Annie's comfort	RSBB, HAD	Yes
TBM4: Visit my home	None	Yes
TBM5: General purpose service robot	None	Yes
FBM1: Object perception functionality	RSBB, MoCap	No
FBM2: Navigation functionality	RSBB, MoCap	No
FBM3: Speech recognition functionality	None	Yes

Table 1: List of the ERL Consumer benchmarks with their corresponding required systems