Project Proposal

Remote Human-Robot interaction for a semi-autonomus service robot

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Proposal

The aim of the project is to design the interaction between robot, customers and employees inside a restaurant context using a remote interface implemented as *Telegram* chatbot.

Human-Robot Interaction : 2 CFU

For the human the input modality is through bottoms inserted inside the telegram chat where essentially the user can select an action that have an effect at the level of interaction. The output modality for the robot is the textual chat where the robot can also communicate when certain condition of the environment are respected (" I have already served the Customer 1").

Reasoning Robots : 3 CFU

Both the environment and the action to be executed are encoded as *PDDL* predicates. In particular we use LTL reasoning for translating temporal constrains for the action ("After going outside a room close the door") and insert it inside the plan. In particular every time the state of the robot/environment change the *domain* and *problem* file are modified accordantly in order to maintain a consistency between the reality and the robot knowledge.

Implementation details

We choose to implement the project using python (Telegram API and interaction management), PDDL and bash script (for manage fast downward) .

Presentation and Homework

- Domenico Alfano : Homework 1 + Presentation [1 CFU]
- Tiziano Guadagnino : Homework 1 + Presentation [1 CFU]

References

[1] Marcus Mast, Michael Burmester, Birgit Graf, Florian Weisshardt, Georg Arbeiter, Michal Španěl, Zdeněk Materna, Pavel Smrž and Gernot Kronreif *Design of the Human-Robot Interaction for a Semi-Autonomous Service Robot to Assist Elderly People*. Springer Berlin/Heidelberg, 2015