Project Proposal – Pepper Robot indoor navigation

1. Introduction

- Loomis Value Solutions imports the Pepper robots to Finland and sells them to the customers.
- Pepper is a genuine humanoid robot who loves to communicate with people. It can identify people in the room and start communicating with them. Pepper communicates by moving arms and speaking. It is mainly used by customer services for example
  - To guide customers
  - To self registration
  - To collect customer feedback
  - To entertain customers
- Most of the time the potential customer comes to our premises to see the Pepper before doing buying decision. One of our objectives is to provide as good experience for the customer as possible and therefore we would like to improve the experience the customer sees on demo situation.
- This project aims to create an indoor navigation system for Pepper so that it could itself come to the reserved meetings on time and then after the meeting it would automatically go back to own location or for the next meeting. Pepper could also show the customer where the toilets are and guide them to the coffee machine.

2. Project goals

- The main goal is to test and implement an indoor navigation software for Pepper robot which Pepper can use for moving from one place to another. The Pepper development framework already includes the API for this (http://doc.aldebaran.com/2-5/naoqi/motion/alnavigation.html).
- An optional goal is to implement O365 account to Pepper so that Pepper could be reserved for a meeting and then Pepper would show up on right place on time
- An optional goal is to implement an optional route for Pepper. If the meeting inviter has not arrived, then Pepper would go to check coffee machine whether the inviter is there.
- To be able to design and implement the navigation system for Pepper the project team shall have some knowledge of Android or Java and they shall be willing to learn the software development framework.

3. Technologies

- Pepper has own development kit.
- Earlier all software development was done using Python but nowadays there is a new software platform for Android and Java which is preferred to be used in this project
- There are already many libraries which can be used for Pepper so there is no need for implementing everything from scratch. For example, you can tell Pepper to walk around and draw map from the room.
• There is a very good documentation online (http://doc.aldebaran.com/2-5/home_pepper.html) for Pepper development and we can also provide support for the team.

4. Requirements for the students

• Some knowledge on Java and Android is of course good but not required. The most important is the willingness to learn the technology because there is a very good documentation and simulator which can be used. We will provide the real Pepper for testing and demo purpose on our premises.
• Our opinion is that this is between moderate and demanding. If the team has previous experience on Android then this can be a moderate and it that case we can take these optional features to the list as well.

5. Legal Issues

Intellectual Property Rights (IPR):

• The client gets all IPRs to the results.

Non-disclosure agreement (NDA):

• Signing the NDA included in the Aalto’s contract template is required.

Are there any other legal issues?

• No

6. Client

• Loomis Value Solutions is a part of Loomis group
• Loomis Value Solutions provides cash management systems and software solutions
• The representatives are
  o Juha Helttunen (Software Development Manager) with 20 years of software development experience.
  o Carl Wiedebaum a long experience with Pepper robot development
• Juha Helttunen can join the project demo and planning meetings. He is also willing to help all upcoming issues and provide help or arrange help from someone else.
• Loomis Value Solutions will provide a real Pepper for the team to use for testing and demo situations at Loomis Value Solutions premises.

Client representative(s)

• Product Owner
• Juha Helttunen
Preselected Student Team Members

- None

7. Additional information

The documentation shall be written in English.