LABORATORIO DI INGEGNERIA DEI SISTEMI SOFTWARE

Introduction

Our motto:
there is no code without a project, no project without problem analysis and no problem without requirements.

Requirements

Design and build a software system that makes a robot is able to walk along the boundary of a rectangular, empty room.

Requirement analysis

MAIN GOALS:

1. clarify the **meaning** of the *names* and of the *verbs* included in the requirement text given by the customer
2. (informally) define a first set of **functional TestPlans**

Interview

1. How is the robot? : robot has wheels
2. How robot detects walls? : robot has a front sensor
3. How robot comunicate with client? : robot has a onboard logic like raspberry pi and accepts commands and sends logs using json format
4. How is the room? : the room has flat and not slippery floor
5. Do i need some more information about physical features of the robot? For example wheel diameter ,elettric engine power , max speed , weight ,sensor accuracy ... : ???

Informally TestPlan

1. send command "run" and check logs that robot did the whole tour

2. send command "alive" and check logs that robot is on
3. send command "status" and check logs what robot is doing now (running ,last collision , etc)

Problem analysis

MAIN GOALS:

1. **Identify** the main problems involved by the requirements and the most appropriate (software) technologies to adopt
   The main problem is about detection of the current position/orientation of the robot. Java libraries focused on communication and IO solves this issue.
2. **Evaluate** the **abstraction gap** and give a **quantitative measure of the effort/resources** necessary to build the system
   Abstration gap is about difference between communicaton/IO java libraries and code that manage business logic (server and client side) about log analisys and specific json string contruction pattern
3. **Define** (a **model** of) the **logical architecture** of the system
   The logic architecture include : server side (raspberry), client side GUI, client side business logic Comm/IO
4. **Refine** the set of **functional TestPlan**
   TestPlans should be divided by architecture element and by functionality : tests for server side functionalities,tests for client side GUI functionalities, tests for client side business logic functionalities
5. (with reference to **SCRUM**) **Define** a (first) **product backlog** and a possibile set/sequence of **SPRINT**
   In this moment i don't have enough information to write a product backlog. I think there's a lack of information about physical features of the robot.

WARNING: expressions like *'we have chosen to ...'*, *'I decided ...'*, etc. are **forbidden** here. Rather, this section should include sentences like ***'this (aspect of the) problem implies that ...'*** or ***'the usage of this (legacy) component requires that ...'***, etc.

Test plans

MAIN GOALS:

1. with reference to the **logical architecture** of the system,
   Write a program (e.g. by using **JUnit**) that defines the set of **functional TestPlans** that the software must satisfy.
   In this moment i don't have enough information to write tests unit.

By studentName email: ugo.marchesini@studio.unibo.it