Software Requirements Specification

Domotic Prevention - SOAP Interface

ABSTRACT: THIS DOCUMENT DEFINES THE SOFTWARE IMPLEMENTATION TO BUILD A SOAP INTERFACE ON OUR MAIN PROJECT ON PREVENTATIVE DOMOTICS (DOMOPREV).

KEYWORDS: OM2M, PREVENTION, ROBOT, SMART SENSORS, ELDERLY ASSISTANCE, ADREAM

AUTHOR	PROJECT MANAGER	PRODUCT OWNER
M.Berthe S.Fahmi R.Gautier K. Persand		LAAS CNRS

Revision History

Version	Date	Author	Change Description
1.0	20/11/16		Initial release

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Section 1. INTRODUCTION

Purpose

This document aims to describe all the software components needed in order to make our application (as explained in PMP) work. It will focus on the SOAP interface requirements.

After reading this document, one should be able to comprehend the different interactions between each part of our software. One will also be able to understand what needs we needed to fill, and how we did it.

This document is intended to people who are going to work/are working on this project, so that they can understand our conception and our goals. It is also intended for teachers and students, who want to explore our project.

Scope

Our main goal is to provide a software basis for robots in a smart environment, such as LAAS's ADREAM, so that they would be able to interact with their environment and help elderly people.

In this project, we will focus on the access to the user's (the elderly person) vital data. A third party (a family member or a doctor) would be able to access to that vital data, and see how our preventive application sees the elderly person.

The SOAP interface will also allow the remote person to send orders to the robot.

We have to note that we won't be able to send the elderly person's data from a remote location to the system, it will only work the other way (only export data, no importation).

Overview

From the next chapter we will be discussing in details about the behaviour of our software.

After describing the different functionalities and the constraints brought by the environment, we will elaborate about how we want to implement each function, and how each part of the program should be interacting with other parts.

Definitions, Acronyms, and Abbreviations

Term/Acronym	Definition
OM2M	One Machine 2 Machine
WSDL	Web Services Description Language
BPEL	Business Process Execution Language

References

PMP-SOAP; 18/11/2016; INSA 5ISS Domotic Prevention

Section 2. General Description

The SOAP interface implemented should be fully compatible with the LAAS's current OM2M architecture.

The SOAP interface should provide access to data stored on the OM2M server.

An interface to send commands to the system should be provided to the user.

Product Functions

Main functions of the SOAP interface:

- Deliver patient's medical status.
- Provide medical records using the person's reference.
- Deliver list of available medicine.
- Control robot's movements.
- Configure and receive alerts signaled by the diagnosis application

User Characteristics

Only one user will interact with the SOAP interface by sending orders to the robot ,getting data from OM2M or receiving alerts.

General Constraints

The main constraint of the user interface is that it should be implemented using SOAP, WSDL and BPEL.

The SOAP interface should be accessible via the internet so that the third-party (for e.g. a physician) can access the patient's/user's medical data or receive alerts.

Assumptions and Dependencies

This document heavily relies on the project management plan and system description document, and should be read in conjunction with them.

Section 3. Requirements

This section contains all of the functional and quality requirements of the system. It gives a detailed description of the system and all its features.

Functional Requirements

Functional requirement 1: Login using a username and a password

- Requirement F01N01: Users must be able to log to the service using a unique username and a password.
- Requirement F01N02: The combination of username and password should be required to access the service provided.

Functional requirement 2: Retrieve data

- Requirement F02N01: Users should be able to access all the data retrieved by the service.
- Requirement F02N02: The service should retrieve the following data from the OM2M server:
- Sensors' data log
    - Patient's current status
    - The diagnosis delivered by the diagnosis application
    - The list of pharmaceutical drug available in the smart home
- Requirement F02N03: When sending the result data, the service should format the

data so that it can be easily exploited from different applications

Functional Requirement 3: Send commands to the robot

- Requirement F03N01: The user should be able to send commands via the service to the robot to move.
- Requirement F03N02: Should the user request to send a command to the robot, the command must be sent to the OM2M application responsible of listening to commands for the robot.

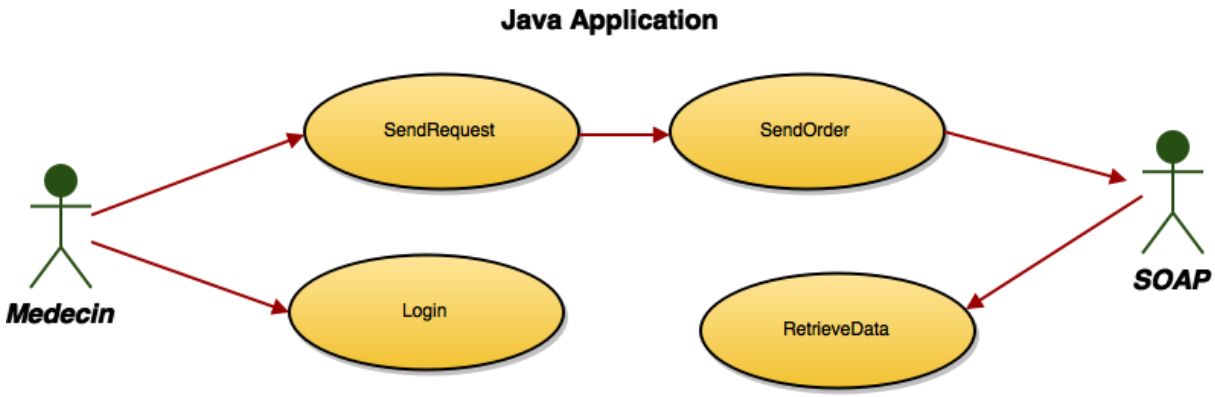

Figure 1 : Use case SOAP

External Interface Requirements

In this section we will provide a detailed description of all inputs into and outputs from the system. It also basic prototypes of the user interface.

User Interfaces

- **Login interface**

Figure 2 : Login interface

- **Administration interface**

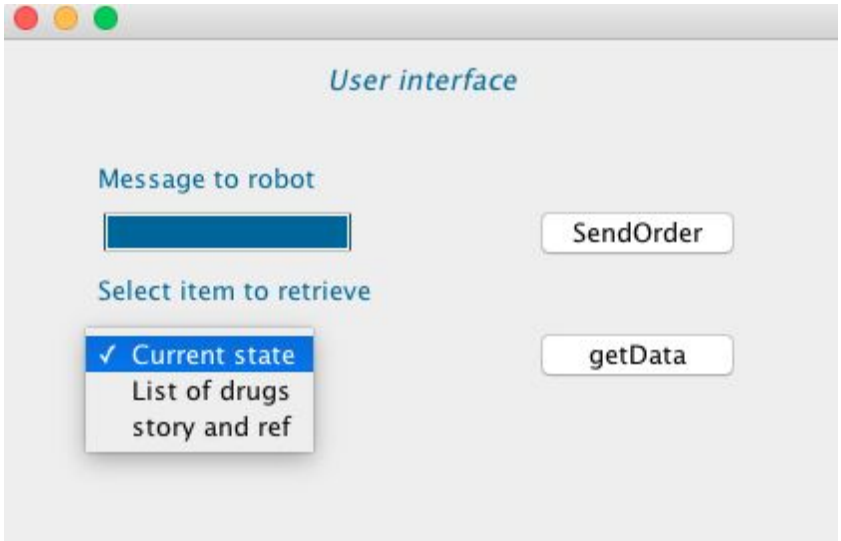

Figure 3 : Administration interface

Performance Requirements

As established previously the user interface must be simple and user-friendly.

For example usage of the administration interface, the user is just selecting an element in the combox and then one click on getData button to retrieve it.

Design Constraints

Standards Compliance

We must be in compliance with report format provided by our functional partner(GEI).

The web interface must be implemented using:

1. Web Service Definition Language (WSDL), for web services description
2. Business Process Execution Language (BPEL), for managing web services interaction

Hardware Limitations

Attributes

Availability

Our system will be always available(not considering network failing).

Security

To access the system, the user must be connected by giving his username and password.

Communication between user and server, we are using SOAP which provides a mechanism of security and we expecting to exploit that, for insure a maximum of security.

Maintainability

In order to be reusable by the LAAS, the software implementation should be easily maintainable and well documented.

A full description will be available at LAAS's redmine.

Transferability/Conversion

N.A.