Software Architectural Design Requirements

# Résultat de recherche d'images pour "sambot esigelec"Introduction

A small bot on wheels needs to be designed. It should be able to move itself in an environment containing obstacles.

The obstacles can be detected and avoided thanks to an ultrasound sensor placed on a servomotor (sweeping).

Holes must be detected too with an infrared sensor (to prevent falls).

This document lists all the **requirements**, for the **software architectural design.**

Every requirement is composed of:

* One unique ID following this pattern: HLR\_XXXXX (Five digits),
* A name, which is always a small introduction of the requirement,
* A text, describing what is this requirement for.

# Software Architectural Design Requirements

HLR\_00100

Name: Moving forward

Text: When the user turns the bot on, it shall move forward.

Covers: SYS\_0100

Module: Bot

HLR\_00110

Name: Turn right

Text: The bot shall be able to turn 90° right.

Covers: SYS\_0100

Module: Bot

HLR\_00120

Name: Turn around

Text: The bot shall be able to turn 180° right.

Covers: SYS\_0100

Module: Bot

HLR\_00200

Name: Detect obstacle

Text: When the ultrasound sensor returns a value under 8cm, an obstacle can be considered detected.

Covers: SYS\_0200

Module: Capteur\_ultrason

HLR\_00210

Name: Sweep obstacle sensor

Text: The servomotor shall rotate in a range of [-45°; +45°] in order to have an obstacle scan of 90 degrees in front of the bot

Covers: SYS\_0200

Module: Servomoteur

HLR\_00300

Name: Detect hole

Text: When the infrared sensor return a value over 4cm, a hole can be considered detected.

Covers: SYS\_00300

Module: Capteur\_infra

HLR\_00500

Name: UART

Text: When a command is sent by user, the MSP430G2553 shall be able to receive and send informations for a device by UART connection (Bluetooth)

Covers: SYS\_0500

Module: UART

HLR\_00510

Name: SPI

Text: When the user sent the command, the MSP430G2553 and MSP430G2231 shall be able to communicate together in transmitter/receiver by SPI connection

Covers: SYS\_0600

Module: SPI

HLR\_00600

Name: Bot start-up

Text: When the start-up command is send from the computer to the MSP430G2553 the bot should start to move in its environment.

Covers: SYS\_0600

Module: Main\_2553

HLR\_00610

Name: Bot stop

Text: When the stop command is send from the computer to the MSP430G2553 the bot should stop moving and wait for next command to be read.

Covers: SYS\_0600

Module: Main\_2553

HLR\_00700

Name: Data display

Text: When the display command is sent from the user, the computer shall display sensors data information

Covers: SYS\_0700

Module: Display