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: The bot shall move forward.

Covers: SYS\_00100

Module: Bot

HLR\_00200

Name: Detect obstacle

Text: When the ultrasound sensor returns a value under 5cm, an obstacle can be considered detected.

Covers: SYS\_00200

Module: Capteur\_ultrason

DDR\_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\_00200

Module: Servomoteur

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\_00200

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\_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\_00600

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\_00600

Module: Main\_2553

HLR\_00620

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\_00600

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\_00700

Module: Display

HLR\_00800

Name: Make a 90 degree turn

Text: When the display command is sent from the computer to the MSP430G2553, the bot shall make a 90 degree turn

Covers: SYS\_00700

Module: Main\_2553