SAM Bot – Software System Requirements

Introduction

We are going to do a robot which can move alone (automatic mode) or manual mode with a wireless Bluetooth command.

(The communication will be done either wirelessly with a Bluetooth module and a digital remote control on smartphone, or with the PC’s control guest.)

Our robot will use an IR sensor positioned on a servomotor to analyse its environment and avoid obstacles.

General diagram

Analog

PWM

SPI

IR Sensor

Servomotor

MSP430 2231

MSP430 2553

Input (Control guest or BT)

UART

Software System Requirements

This document lists all the **system requirements**, for the **software only.**

Every requirement is composed of:

* One unique ID following this pattern: SSR\_XX,
* A name, which is always a small introduction of the requirement,
* A text, describing what is this requirement for.

**SSR\_01**

Name: MSP430 2553 & MSP430 2231 Communication

Text: These two microcontrollers shall communicate with SPI communication.

**SSR\_02**

Name: IR sensor

Text: The IR sensor shall detect obstacles.

**SSR\_03**

Name: Servomotor

Text: The servomotor shall scan the environment of the robot.

**SSR\_04**

Name: Move

Text: The robot shall move in all directions.

**SSR\_05**

Name: Avoid obstacles

Text: The robot shall avoid moving or static obstacles.

**SSR\_06**

Name: Two operating modes

Text: The robot shall have two modes of operation: automatic or manual. The automatic mode shall allow for autonomous travel while avoiding obstacles. The manual mode shall allow for user to control the robot with PC’s or smartphone’s commands.

**SSR\_07**

Name: Bluetooth module

Text: The robot shall have a Bluetooth module in order to receive user’s information remotely.

**SSR\_08**

Name: Control guest

Text: The robot shall have a control guest in order to receive user’s information. The control guest will mainly be used to test the code on the robot.

Software Architectural Design Requirements

This document lists the **requirements** of the **software architectural design.**

Every requirement is composed of:

* One unique ID following this pattern: SADR\_XX,
* A name, which is always a small introduction of the requirement,
* A text, describing what is this requirement for.

**SADR\_01**

Name:

Text:

Covers:

Module:

**SADR\_02**

Name:

Text:

Covers:

Module: