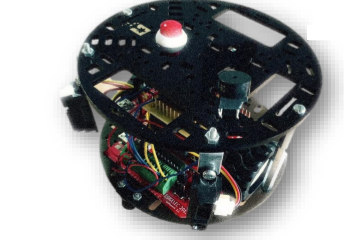
SAMBOT – Software architectural Design Requirements

**Content table**

Content table …………………………………………………………………………………………………………………1

Introduction……………………………………………………………………………………………………………………1

Software Architectural Requirements…………………………………………………………………………….2

Introduction

SAMBOT is a tiny robot that is controlled by UART. It is composed of a master and a slave card. The first one controls the wheels depending of the information it receive from the second, which manages the sensors.

This document lists the requirements of the software architectural design.

Every requirement is composed of:

- One unique ID following this pattern: SAMBA\_XXX (Three digits).

- A name, which is always a small introduction of the requirement.

- A text, describing what is this requirement for.

Software Architectural Design Requirements

SAMBA\_001

Name: Master Card

Text: The master card manages the wheels. Use SPI and UART to communicate with a slave card and a Bluetooth card.

Covers:

Module: MSP\_430g2553

SAMBA\_002

Name: Slave card

Text: The slave card manages the sensors and one servomotor. It also communicate with the master card in SPI.

Covers:

Module: MSP\_430g2231

SAMBA\_003

Name: Bluetooth Card

Text: The Bluetooth card communicate with the Master card in UART communication. It receives commands from the User via Bluetooth.

Covers:

Module: RN42

SAMBA\_004

Name: Servomotor

Text: The servomotor is a module that support sensors which rotate.

Covers:

Module: HS-422

SAMBA\_005

Name: Infra-Red Sensor (IR)

Text: The IR sensor is used to detect obstacles and measure the distances to them.

Covers:

Module: GP2D120

SAMBA\_006

Name: Ultrasonic Sensor (US)

Text: The US sensor is used to detect obstacles and measure the distances to them.

Covers:

Module: SRF02

SAMBA\_007

Name: Right Wheel

Text: This is the right servomotor which commands the right wheel in both directions (forward and backward).

Covers:

Module: S3003

SAMBA\_008

Name: Left Wheel

Text: This is the left servomotor which commands the left wheel in both directions (forward and backward).

Covers:

Module: S3003

SAMBA\_009

Name: UART

Text: The UART is the connection between the Master card and the Bluetooth Card.

Covers:

Module: MSP430g2553, RN42

SAMBA\_010

Name: SPI

Text: The SPI connection is used to link the Master and Slave Cards. On the master card: clock P1.4, SOMI 1.1, SIMO 1.2. On the Slave card: clock 1.5, SOMI 1.6, SIMO 1.7.

Covers:

Module: MSP430g2553, MSP430g2231

SAMBA\_011

Name: Clock

Text: The Clock of Master Card is use as reference for the Slave Card.

Covers:

Module: MSP430g2553

SAMBA\_012

Name: Stop hole

Text: When Infra-Red detect a gap forward the robot this one stop the wheels. After that it must goes backward and turn left or right to avoid the gap.

Covers:

Module: S3003, MSP430g2553, MSP430g2231, GP2D120

SAMBA\_013

Name: Detect obstacles

Text: When the Ultrasonic Sensor detect some obstacles around the robot. This one must avoid them.

Covers:

Module: SRF02, MSP430g2553, MSP430g2231

SAMBA\_014

Name: Power

Text: When the user press on the power button the robot is activated or disable.

Covers:

Module: MSP430g2553