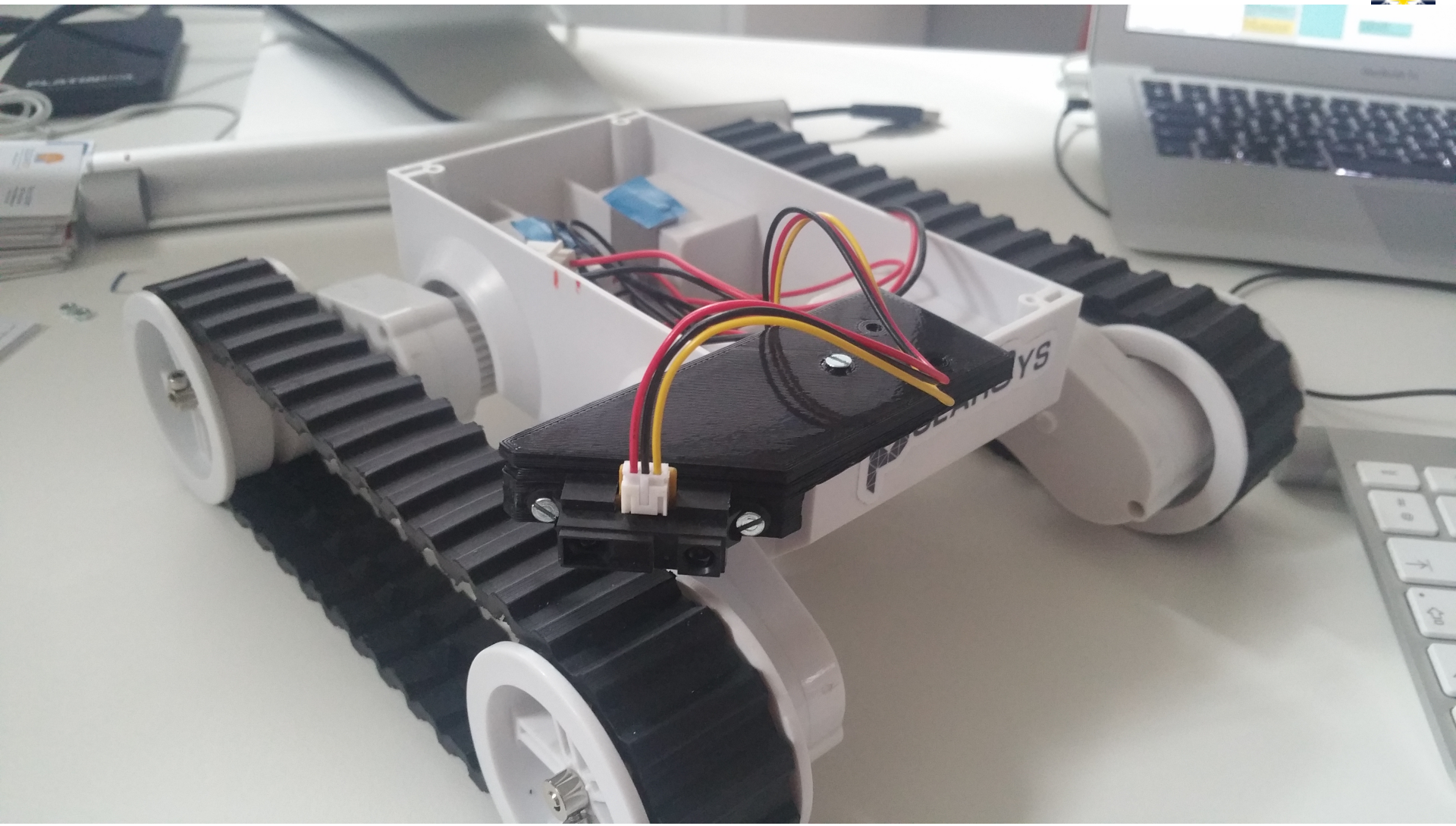
Open Source Tools for Embedded Systems

PolarSys Rover Project
meeting

March 14th 2017



Status

- Easy to replicate Bill of material
  - 2 levels of Bom
    - With 2 or 6 distance sensors
- C code and getting started
  - Still need to be adapted for
    - Fix the doc (ongoing)
    - Integrate the additional distance sensors)
    - Replace the humidity sensor by the compass (much more usefull)
- Need to finish the casing

Improve requirements

Level 1: Rover autonomously avoids obstacles and basically map environment

Level 2: Use camera for lane tracking

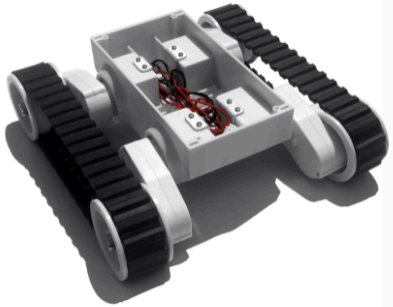
Level 3: Enables Rover convoys: First rover does lane trakcing and the other ones follow the first one.

BOM – See http://wiki.polarsys.org/Rover5_BOM

page | discussion | edit | history | delete | move | protect | unwatch

Rover5 BOM

- Pololu Dagu Rover 5 - The Rover Demonstration Case Studies are constructed around the Dagu Electronics Rover5 two-wheel-drive tracked robot chassis. The chassis is also available in a four-wheel drive version, but the two-wheel drive is sufficient for this project, is less expensive, and requires the usage of fewer i/os to control the motors.



On the photo:

- 1 Rover 5 Robot chassis
- 1 Raspberry PI 3
- 1 16Go Micro SD-Card
- 1 humidity and temperature sensor (SeedStudio Grove system)
- 1 LED (SeedStudio Grove system)
- 1 Pi Camera
- 1 Pi Camera case
- 2 Infra Red sensors Sharp 0A41SK + connectors
- 1 Pololu RPi hat motor controller #2756
- 1 connector to be soldered on the #2756 controler
- 1 MCP 3008 Analog/Digital Converter or MCP 32008 Analog/Digital Converter
- 1 Bread board (170 points is enough)

Not on the image:

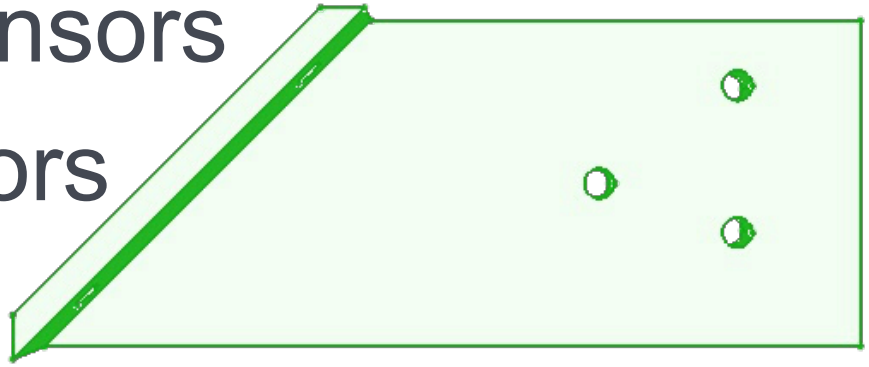
- Wires
- Battery with 2 USB ports
- 1 USB cable (for the RPi3)
- 1 USB cable modified to power the motor controller

- Add additional sensors
- Link to plans for 3D printed parts

3D printed parts

Support for:

- 2 ultra sound sensors
- 4 infra-red sensors
- 1 camera
- 1 pole for the LED and compass



Prepare initial contrib

gaelblondelle / PSysRoverInitialContrib

Watch 4 | Star 1 | Fork 1

Code | Issues 0 | Pull requests 0 | Projects 0 | Pulse | Graphs

Temporary repo to prepare the initial contribution for the PolarSys Rover project

50 commits | 1 branch | 0 releases | 6 contributors | EPL-1.0

Branch: master | New pull request | Find file | Clone or download

Gaël Blondelle Update screenshot and fix doc — Latest commit 3546582 11 days ago

documentation	Update screenshot and fix doc	11 days ago
lib	Added README.md files for most folders	5 months ago
models	Added css styles for ple modeing.	5 months ago
runtimes	Merge pull request #3 from mozcelikors/patch-2	2 months ago
sandbox/AORover-Java	Links for images added	a month ago
.gitignore	Initial .gitignore file	5 months ago
LICENSE	Initial commit	9 months ago
README.md	Update README.md	9 months ago

Future plans

- Capella model
- Papyrus model
- Test the real-time OS defined by Ecole Polytechnique de Montréal and Ericsson (see https://github.com/polarsys-rover/polarsys-os)

Future events

- Unconf session at EclipseCon France 2017
- Presentation at Amalthea4Public final review
- Tutorial at Incose Symposium with VSE Working Group