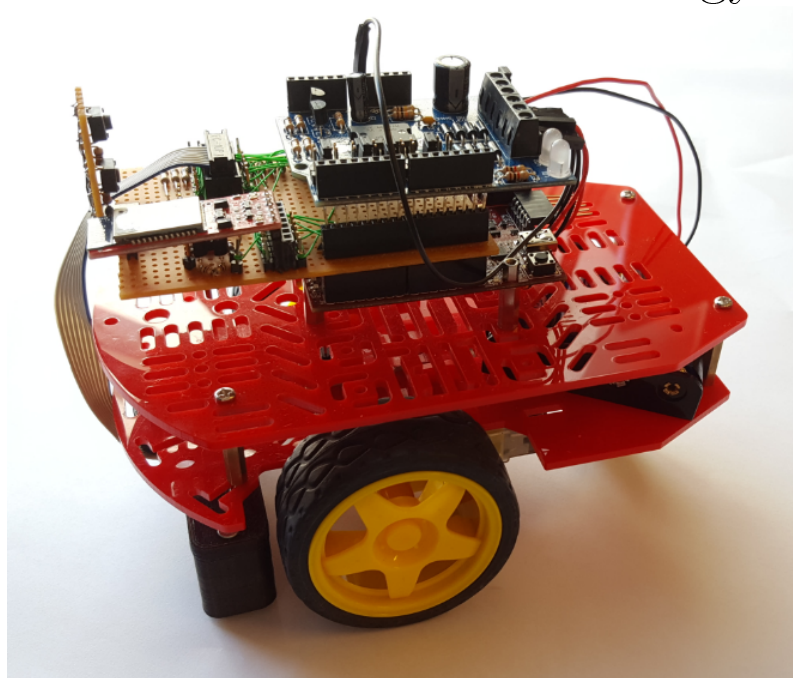


Fall Semester 2015

Line following robot

Group 2

2. Semester IT-Technology



Group members: Benjamin Nielsen - Henrik Jensen - Martin Nonboe - Nikolaj Bilgrau

Supervisor: Jesper Kristensen - Steffen Vutborg

Title:

SICK PEW PEW robot

Project Period:

3. Semester | Spring semester 2016

Projectgroup:

Group 2

Group participants:

Benjamin Nielsen

Henrik Jensen

Martin Nonboe

Nikolaj Bilgrau

Supervisors:

Jesper Kristensen

Steffen Vutborg

Pages:

Appendices:

Completed:

Preamble

This project was written by group 2, for the second semester on the IT-electronics education at university college Nordjylland, Sofiendalsvej 60. The project goal is to make a line following robot.

Benjamin Nielsen

Henrik Jensen

Martin Nonboe

Nikolaj Bilgrau

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3D print 3-Dimensional printing

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Beskrivelse af afsnit

3.1 Hardware diagram

Beskrivelse af hardware diagram

3.1.1 Sensor choice

3.1.2 Another sensor choice?

3.2 Analog-to-digital converter

ADC diagram

This products usage of ADC

3.3 The chipKIT Uno32 board

3.4 The motor shield - PKA03

3.4.1 The H bridge

3.5 The Bluetooth transceiver

Software section 4

Beskriv Software section

4.0.1 Software diagram

4.1 Analog to digital conversion

4.2 PID controller

4.2.1 Proportional control(P)

4.2.2 Integral control(I)

4.2.3 Derivative control(D)

4.2.4 Loop tuning

4.2.5 Steady-state error

4.2.6 Stability

Table ?? explained

4.2.7 PID Implementation

4.3 Pulse-width modulation

4.3.1 Duty cycles

4.4 The interface

Test 5

Beskriv test section

5.1 Unit Testing

5.1.1 Sensor

Setup

Results

5.1.2 DC Motors

Setup

Results

5.1.3 H-Bridge

Equipment

Setup

Results

5.1.4 PWM

Equipment

Setup

Results

5.1.5 ADC

Equipment

Setup

Results

5.2 Integration Testing

5.2.1 PWM motor control

Equipment

Setup

Results

5.2.2 Robot to Interface communication

Equipment

Setup

Results

5.3 System Testing

Equipment

Setup

Results

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Skriv en fucking Conclusion!!

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7.1 Group collaboration agreement

7.1.1 Contact Information

Table 7.1: Contacts

Benjamin Nielsen	Tlf: 30427645	@: yipiyuk5@gmail.com
Henrik Jensen	Tlf: 28568934	@: henrik_kort@hotmail.com
Martin Nonboe	Tlf: 23827566	@: nonsens_4@hotmail.com
Nikolaj Bilgrau	Tlf: 29802715	@: nikolajbilgrau@gmail.com

7.1.2 Workflow

7.1.3 Deadline

7.1.4 Milestones and goals

Gerne en kalender der viser dage arbejdet!

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9.1 C code

main.c:

ADC.c:

9.2 C# code - interface