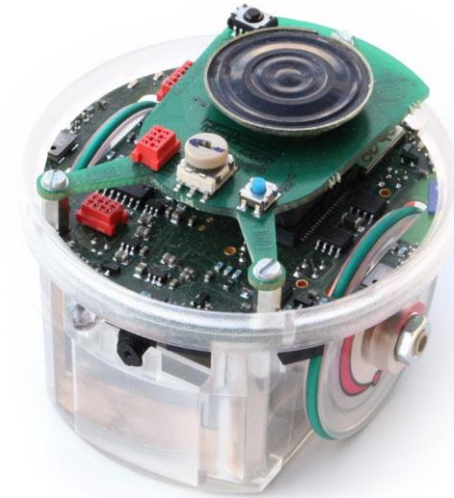


# Road sign recognition

Nathan Bonnet, Anna Bösel, Lena Straumann

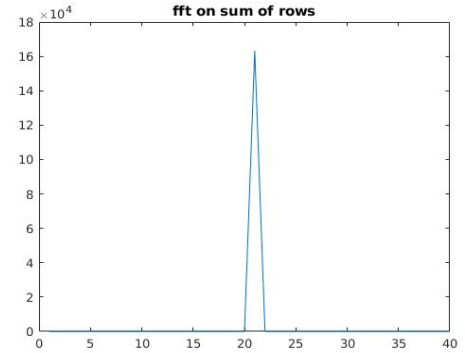
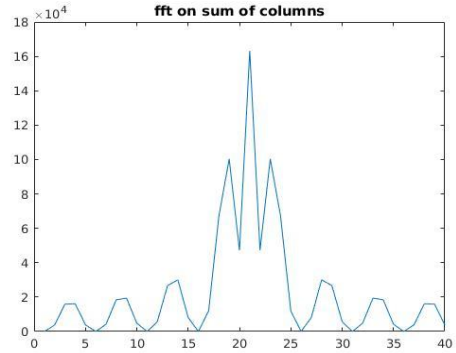
# Introduction

- E-puck
- Signal processing using Fourier analysis
- Three steps approach
- High actuality

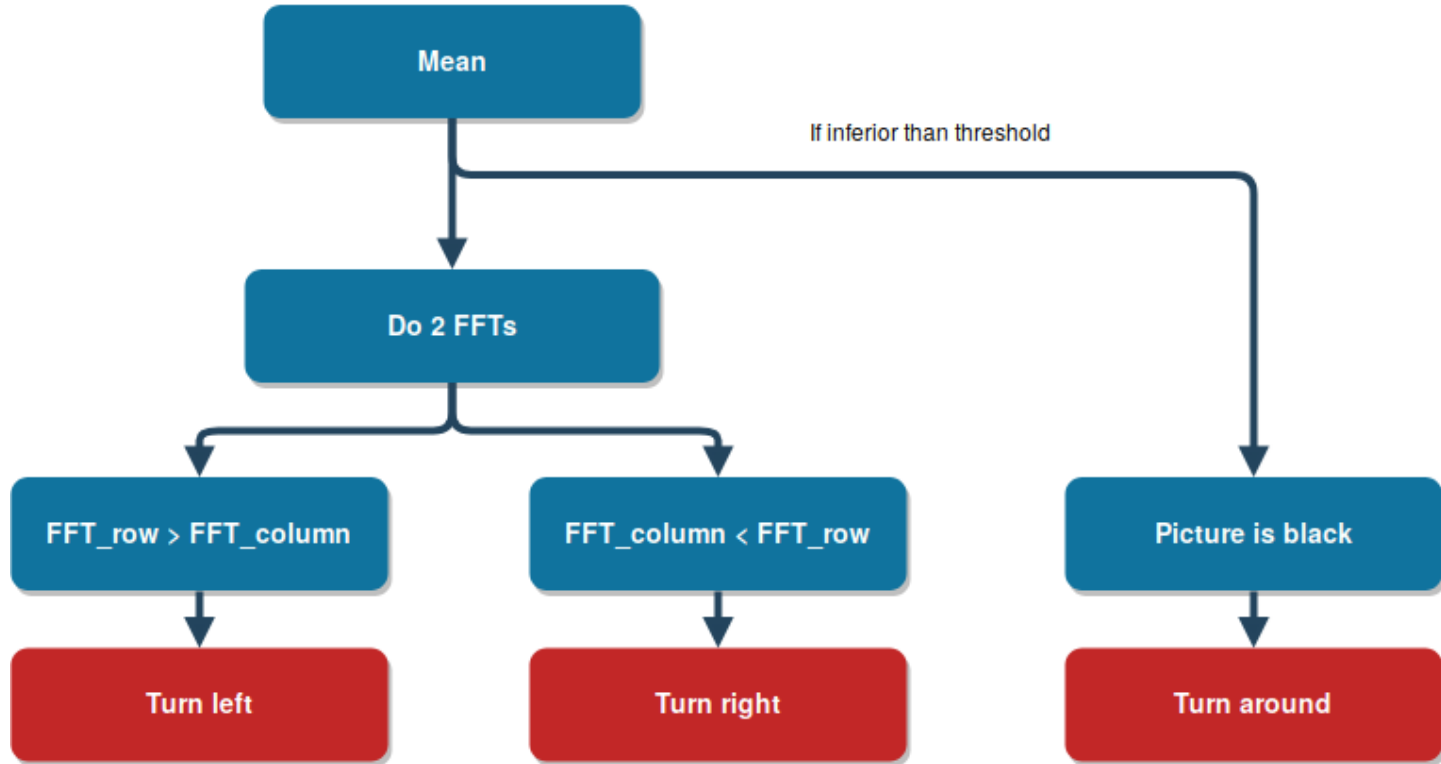


# Matlab

- Analyse picture
- 1D-Fourier transform



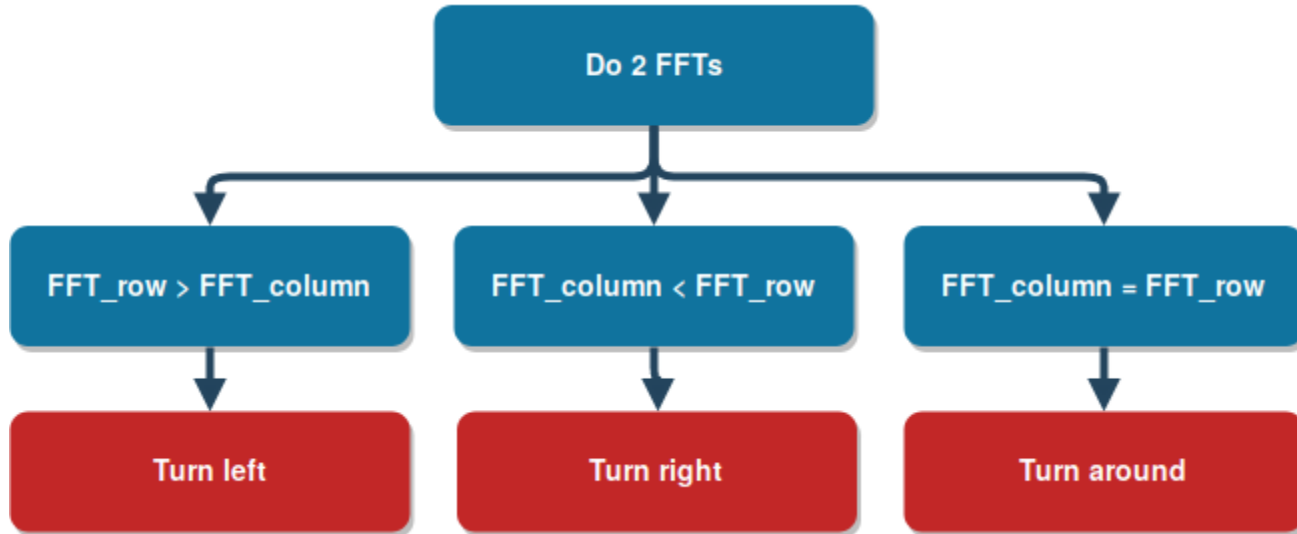
# Webots



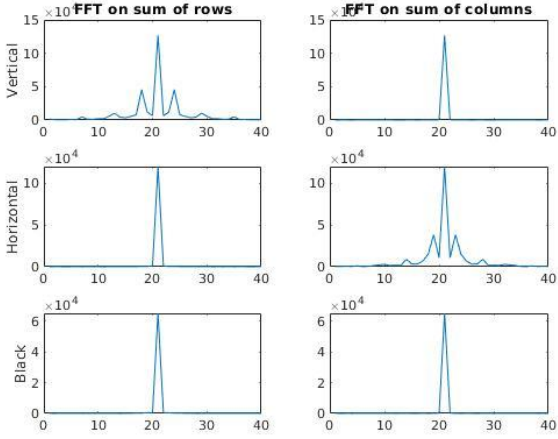
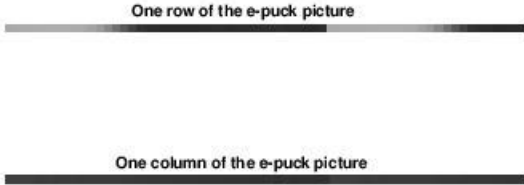
# Webots

Video

# E-puck



# E-puck: Analysis of one row/column



# Experiments

- # right decisions in front of vertical stripes
- # right decisions in front of horizontal stripes
- # right decisions in front of black image
- # successful escapes from the maze
- Under different light conditions



# Results

	<b># of attempts</b>	<b># correct analysis good light conditions</b>	<b># correct analysis poor light conditions</b>
<b>Black sign</b>	10	9	10
<b>Horizontal</b>	10	10	0
<b>Vertical</b>	10	10	0

# Demonstration maze

# Demonstration maze

<b>Attempt nr.</b>	1	2	3	4
<b>Time</b>	1:38	1:45	1:35	1:04

- 1 reading error → recognition strategy works in 94%
- Problems with Braitenberg when close to a wall

# Conclusion

- Complex tasks done
- Limitations
- Approach for memory-limited devices
- Learning outcome