ODeM: Optical Data-transmission systEm for swarm Micro-robots

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Agenda

- Mission
- Hardware Platform
- Software Tools

Projet: Jasmine

Open-Source platform of microrobots:
- Hardware
- Software

Objectives

- 1st: Embedded Ego-positioning System
- 2nd: Communication with Virtual Pheromones
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- 1st: Embedded Ego-positionning System
- 2nd: Communication with Virtual Pheromones
- 3ème: Codes transmission to the Robots

Description of the System

- 1 PC: Image computing
- 1 Beamer: Image projection
- 1 embedded Hardware board

Beamer: Image projection

1-Chip DLP™ Technologie
IV. Software

ODeM: Optical Data transmission system for swarm Micro-robots

Dual Code

AGENDA
- Background
- Mission
- Hardware
- Software

A B
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

23mm
20mm
10mm
31mm
Dual Code vs Gray Code

Gray Code

AGENDA

Ego-positioning Virtual Pheromones Codes Transmission
**Gray Code**

Horizontale axe:
- 9 pictures
Resolution
- 1600mm/2^9=3.1mm

3 pictures: starts bits
9 pictures: horizontal
9 pictures: vertical
21 pictures: total

• 21 pictures: total
Frequency: 60 Hz
16.67ms * 21 pict = 350 ms