Colourly

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Progress
Topic review

- Multi-agents path finding
- Color searching and distribution: 1 Color -> 1 Ozobot
- Distributed & online
Reminder of stage 1

- Robots vs Circles N : N
- Goals:
  - Every area is occupied by single robot
- Tasks:
  - Movement inside the map
  - Searching all over the map
  - Occupation of the area
  - Distribution of occupied colors
  - Prevent DeadLocks
Map properties

- Rectangular shape
- Black wide border
- White background
- Coloured fulfilled circles
- No color occurs twice
What did we achieve?

- Each robot...
  - moves inside the map borders.
  - shows current procedure and the occupied color (as LED lights)
  - goes over the entire map
  - If it reaches the color circle, it would defend it
  - rolls over its color
- Ozoblockly
  - blocks everywhere
  - huge code
What’s currently buggy?

- Ozobot wheels
  - worn out one of the wheels
- Communication protocol
  - All message enqueued
  - Absence of documentation
  - Distance of broadcasting robots
  - Rotation of transmitter
- Collision of robots
  - Problems with rotated robots
  - Too fast sometimes
What are we working on?

- Precision of Ozobot’s movement and turning
  - Searching the whole map - no unexplored zones
  - Algorithms for substitution of absence of odometry
- Extended communication between Ozobots
  - Simple error-resistant communication protocol
  - Find a way how to use limited Swarm module
- Clever occupation of color shape
  - For more complex shapes Ozobot needs smart searching strategy
- Finding achievable sequence of colors
  - Prevent deadlocks
Examples of code
Awesome video
Single robot video
Not so awesome video
Thank you for your attention