Colourly

Working name: Barvičky

Vision

Summary

- Problem Statement
- Map Definition
- Goals (Bonus goals)
- Motivation

Problem Statement - Challenges

- Planning & Scheduling

- Multiagent PathFinding

- Robust & Distributed

- Online & Universal (without pre-calculation)

Stretch goals - Stages

1. Basic goal multicolored circles - only one robot for single color (N:N)
2. Add Scoring (messure time to occupied status)
3. Add more complex shapes
4. Add Waiting (less circles than robots) (Time to fullfil workplace)
5. Add Color Sequence to perform for every single robot
6. Add multirobot entrence
7. Solve

Map Definition
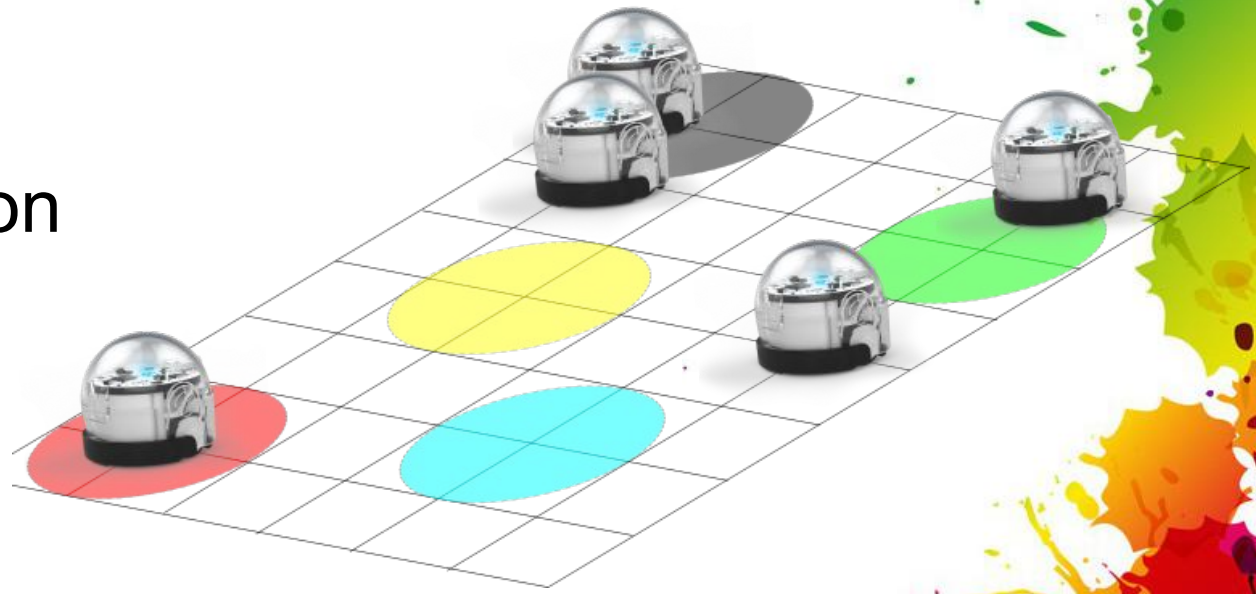
- Black Borders (Surrounding of map)

- White Space (Background with no interaction)

- Shapes of specific color represents single area to secure or workspace
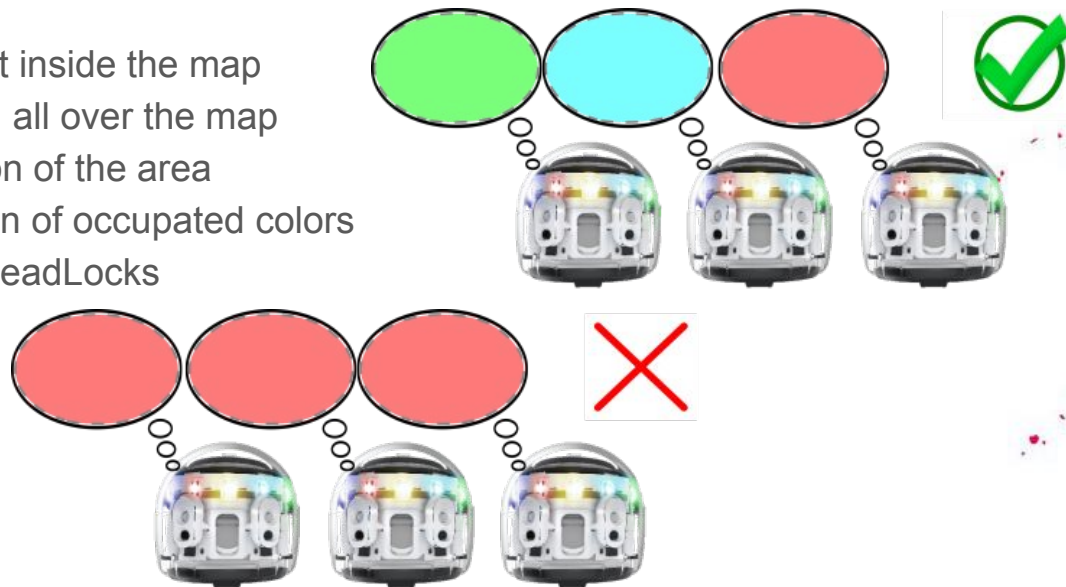
Stage 1
Basic Solution

- 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 occupated colors
  - Prevent DeadLocks
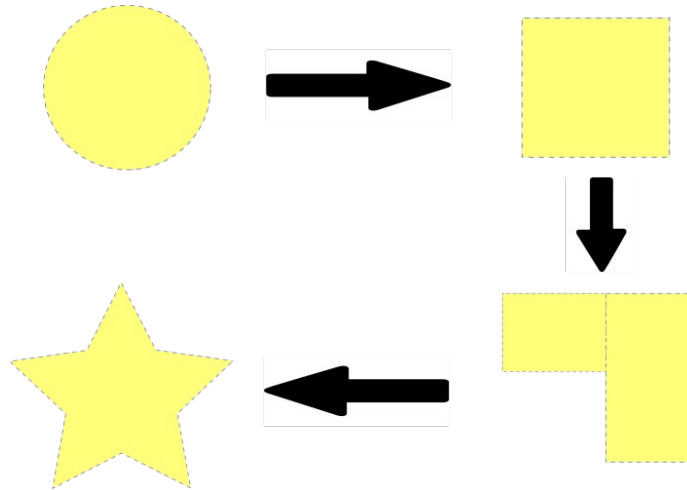
Stage 2
Racing Solution

- Robots vs Circles N:N
- Goals:
  - Same as stage one
- Tasks:
  - Extend communication between agents
 - Solve maps much more faster than Stage 1

Stage 3
Complex Shapes

- Robots vs Shapes N:N
- Goals:
  - Same as stage one
- Task:
  - Make solution independent of round shapes

Stage 4
Waiting Robots

- Robots vs Shapes N:less than N
- Goals:
  - every robot occupied the color area for given time(tick)
- Tasks:
  - extend communication of waiting process
  - simulate ticks
  - memorize fullfiting of the goal
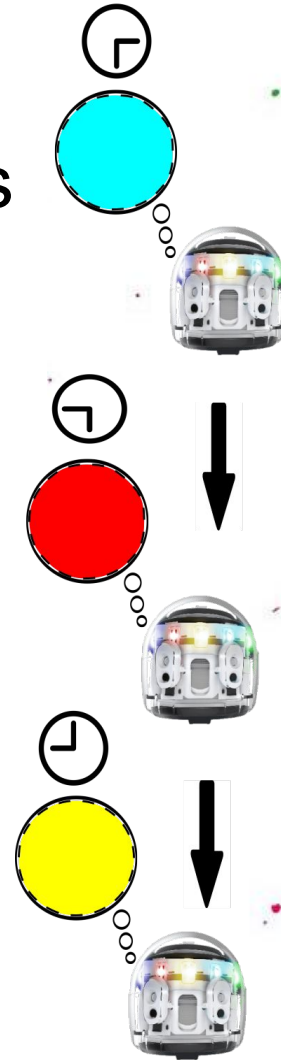
Stage 5
Color Sequence

- Robots vs Shapes N:less than N
- Goals:
  - every robot occupied the color area of its own sequence for given time(tick)
- Tasks:
  - memorize sequence to fullfit
  - extend communication to minimalize free areas

Stage 6
Unreachable

- Robots vs Shapes N:less than N
- Goals:
  - every robot occupied the color area of its own sequence for given time(tick)
- Tasks:
  - robots enter the scene in different time intervals
  - optimize the movement of curretly present robots and just entered robots

01:00   02:00   03:00

Questions?

Thank you for your attention!