Third presentation

Agenda
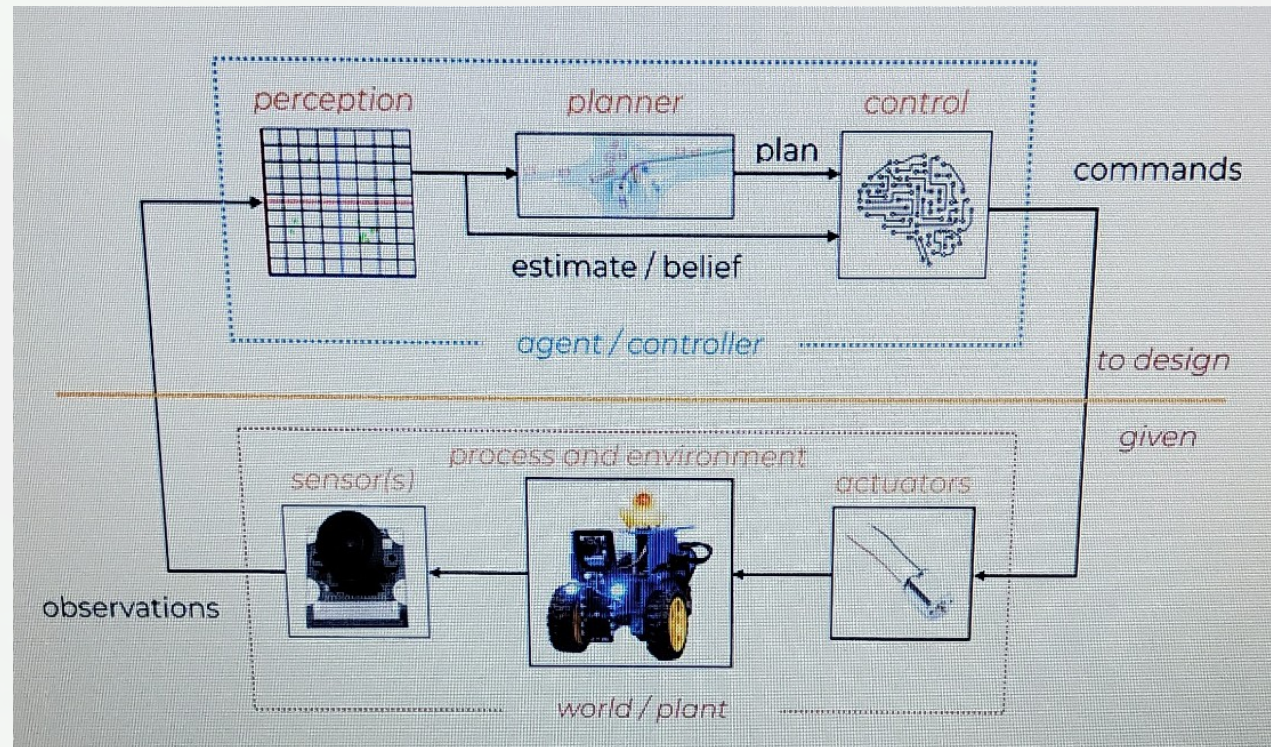
How the comunication between laptop and robot works
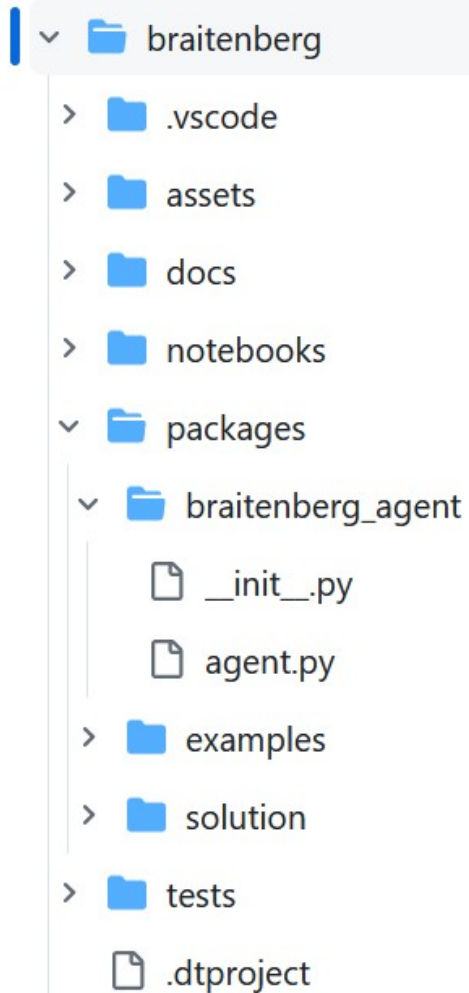
Path planning resources

Where to begin?

How the communication works

```
v  📁 braitenberg
   >  📁 .vscode
   >  📁 assets
   >  📁 docs
   >  📁 notebooks
   v  📁 packages
      v  📁 braitenberg_agent
         📄 __init__.py
         📄 agent.py
      >  📁 examples
      >  📁 solution
   >  📁 tests
   📄 .dtproject
```

dts code workbench --duckiebot YOUR_DUCKIEBOT

agent.py performs the corresponding computations given the observations of the robot and gets the commands (move motors, turn on leds).

Path planning

Environmental Modelling

1. Traditional environmental modeling methods

2. Model-based approach.

3. Based on stereo vision method.

4. Based on raster map method.

5. Based on sensor fusion method.

6. Based on deep learning.

7. V2X-based environment modeling method.

Global path planning algorithm

1. Traditional algorithm of map-based path planning

    1. Dijkstra algorithm

    2. A * algorithm

    3. D * algorithm

    4. LPA * algorithm

    5. D * Lite algorithm

    6. Comparison of traditional algorithms based on maps

2. Path planning algorithm based on bionics

    1. Genetic algorithm

    2. Neural network algorithm

    3. Ant Colony Algorithm

3. Sampling-Based Path Planning Algorithm

    1. PRM algorithm

    2. RRT algorithm

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Some python path planning algorithms:

https://www.awerobotics.com/implementing-path-planning-algorithms-for-robots-using-python/

Vielen Dank

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