Robot Detection for Dutch Nao Team

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Introduction

- DNT
- Neural Networks
- Processing Power

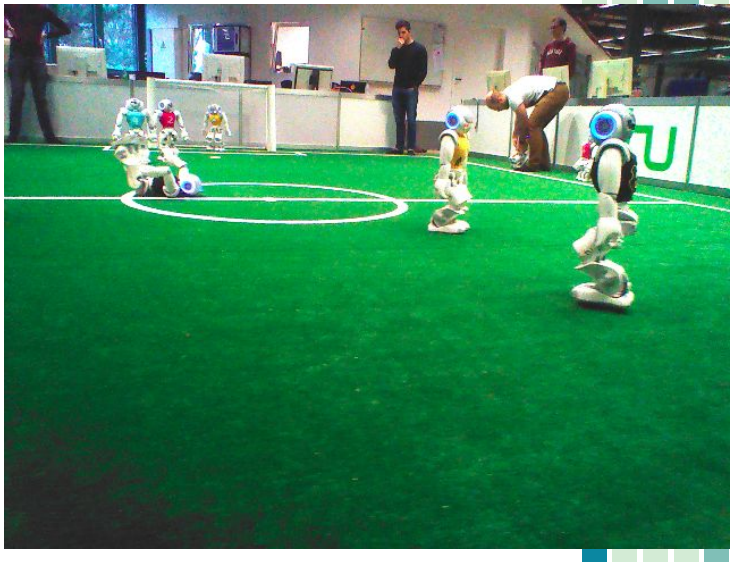
Context

- Ball Detection
  - Preprocessing
  - Hypothesis Generation
  - Classification

- Other Teams

Our method

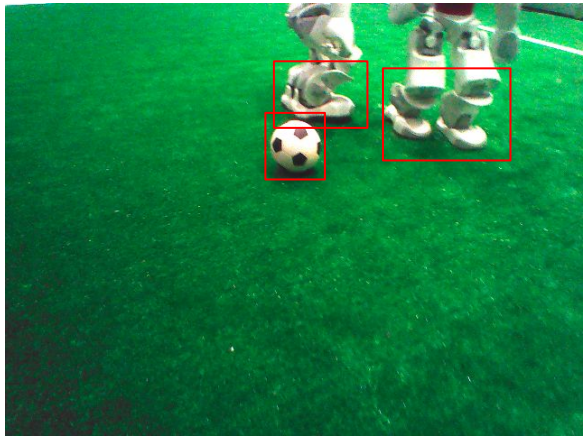
- Preprocess:
  - Blurr
  - Edge detector
  - Ransac
  - Cut horizon



Our method

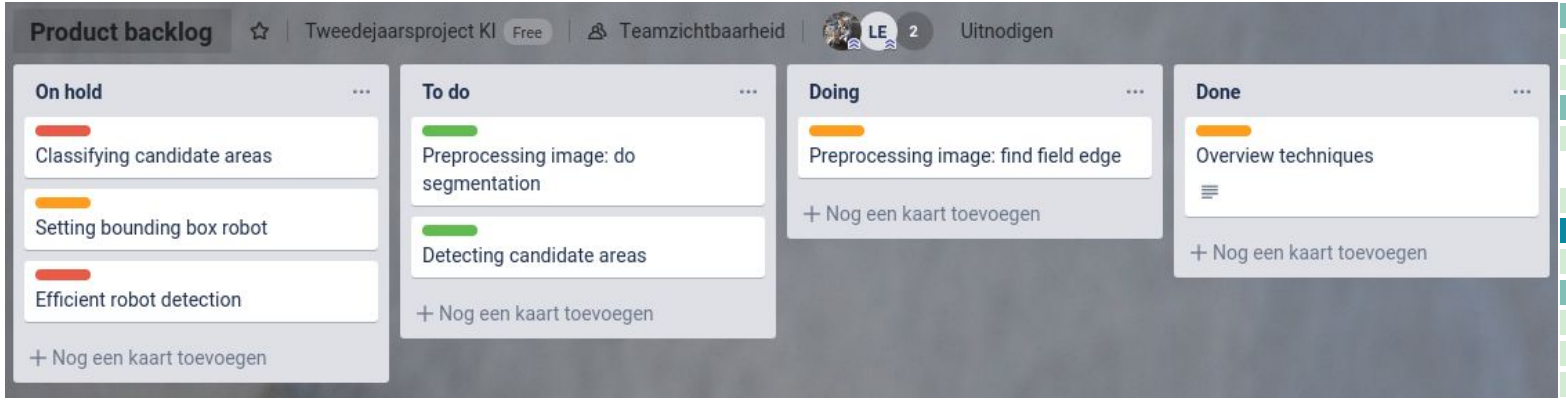
- Localizing/Object Detection:
  - Relevant Image To Binary
  - Bounding Box over white spaces

Our method



- Robot classification:
  - Feet classification
    - Scale
    - Crop
  - Estimate bounding box over robot

Product backlog



- Trello
- Scale: small, medium, large
- Importance: top to bottom

Product backlog

On hold	To do	Doing	Done
- Classifying candidate areas (Large) - Setting bounding box robot (Medium) - Efficient robot detection (Large)	- Preprocessing image: segmentation (Small) - Detecting candidate areas (Small)	- Preprocessing image: find field edge (Medium)	- Overview Techniques (Medium)

Image segmentation + detection

- Image segmentation
  - Find edge point candidates
    - Gaussian blurring (S)
    - Canny edge detector (S)
  - Find line through points
    - RANSAC (S)

Detecting candidates

- Non-field 'cut off'
- Image to binary (S)
- OpenCV: find contours
- Draw bounding boxes (M)

Questions?