

6CCS3PRJ

Robot Receptionist

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Introduction & Goals

- Why?

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 - Robot Receptionist

centered-slide[= Implementation]

Services

First, we need:

- Understanding of TIAGo
 - Navigation Stack
 - Depth Information
 - Text-to-speech
 - RGB Camera

Services

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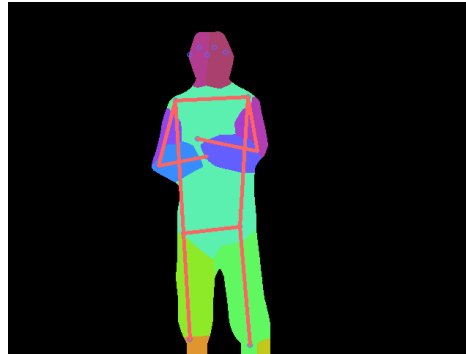
- Understanding of TIAGo
- Object Detection (YOLO)



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- Speech Recognition (Whisper)

Services

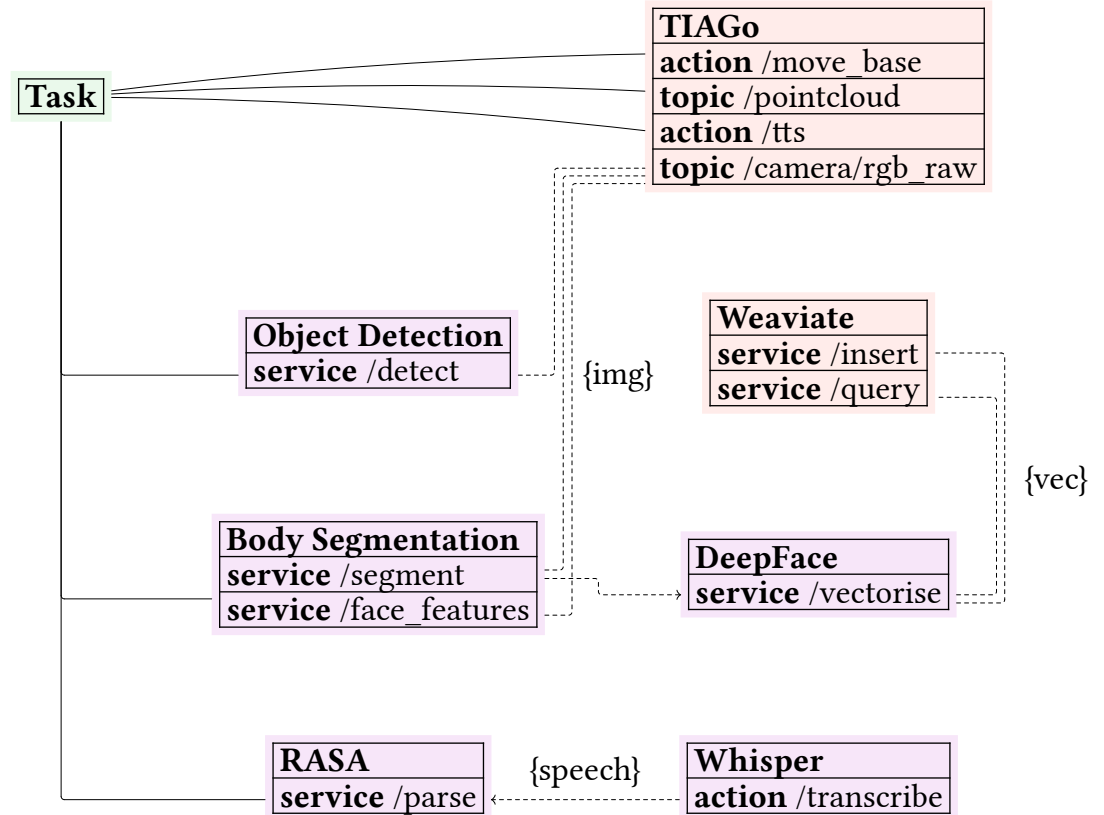
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- Dialog Intent (RASA)

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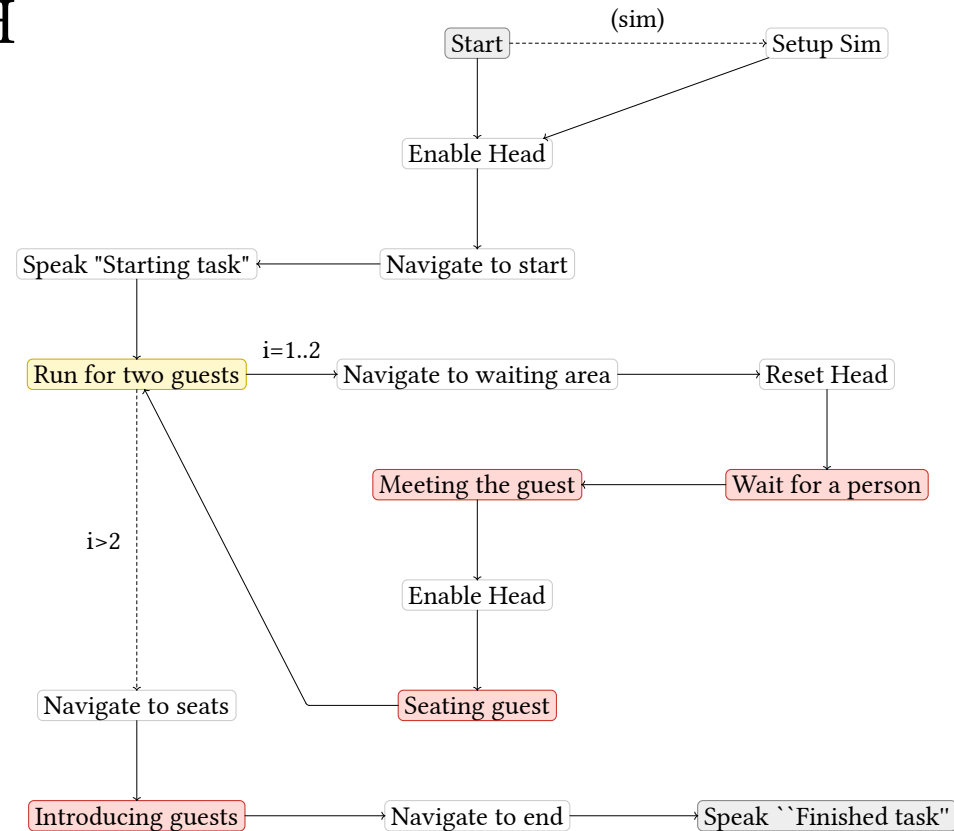


Task

- Implemented using SMACH

Task

- Implemented using SMACH
- Overarching state machine
 - Meet the guest
 - Seat the guest
 - Introduce guests



Evaluation

Does it work?

Does it work?

Yes.

- T1 ✓ Able to navigate to preconfigured beacons in the arena
- T2 ✓ Wait for a person to appear and approach them
- T3 ✓ Generate a description of a guest incl. at least 4 characteristics
- T4 ✓ Engage in conversation with a guest asking for name & drink
- T5 ✓ Learn a guest's face features and then later reidentify them
- T6 ✓ Direct guests to sit in empty seats in the waiting area

Does it work?

Yes.

Does it work well?

Does it work?

Yes.

Does it work well?

For the most part. Falling short in feature extraction and some robustness. Limitations of hardware.

Lab Demo

Simulation Demo

Conclusion

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- Mostly met criteria, missed the mark in feature extraction

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- State-of-the-art models are the path of least resistance

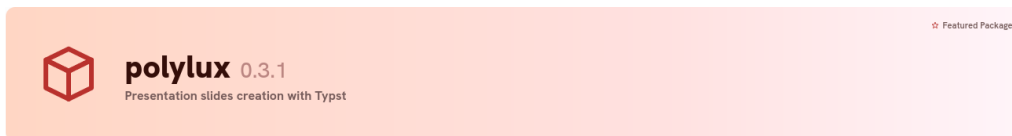
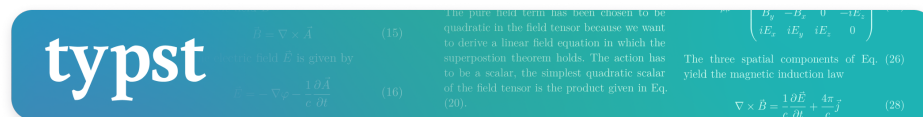
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- Mostly met criteria, missed the mark in feature extraction
- State-of-the-art models are the path of least resistance
- Development of custom vision models is a project in itself
- SMACH is an excellent library (for prototypes & production)

Presentation made with



Source code available at

git.is.horse/insert/university/ug-project-dissertation