

MASGuido

Human-centered Interaction in Robotics

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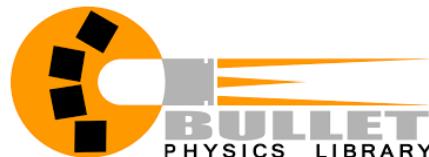


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Requirements

1. numpy
2. pybullet
3. qibullet
4. pydub
5. gtts
6. opencv-python
7. RASA



Architecture

Diagram Description:

Pepper Hardware:

Microphone: Captures audio for speech input.

Speaker: Outputs audio for greetings and conversations.

Facial Recognition System:

Video Input: The camera feed is processed for facial recognition.

Conversation System:

Rasa Chatbot: Manages the conversational logic.

Rasa Core: Handles the dialog management.

Rasa NLU: Interprets natural language input from the user.

Middleware:

API: Facilitates communication between Pepper and the Rasa chatbot.

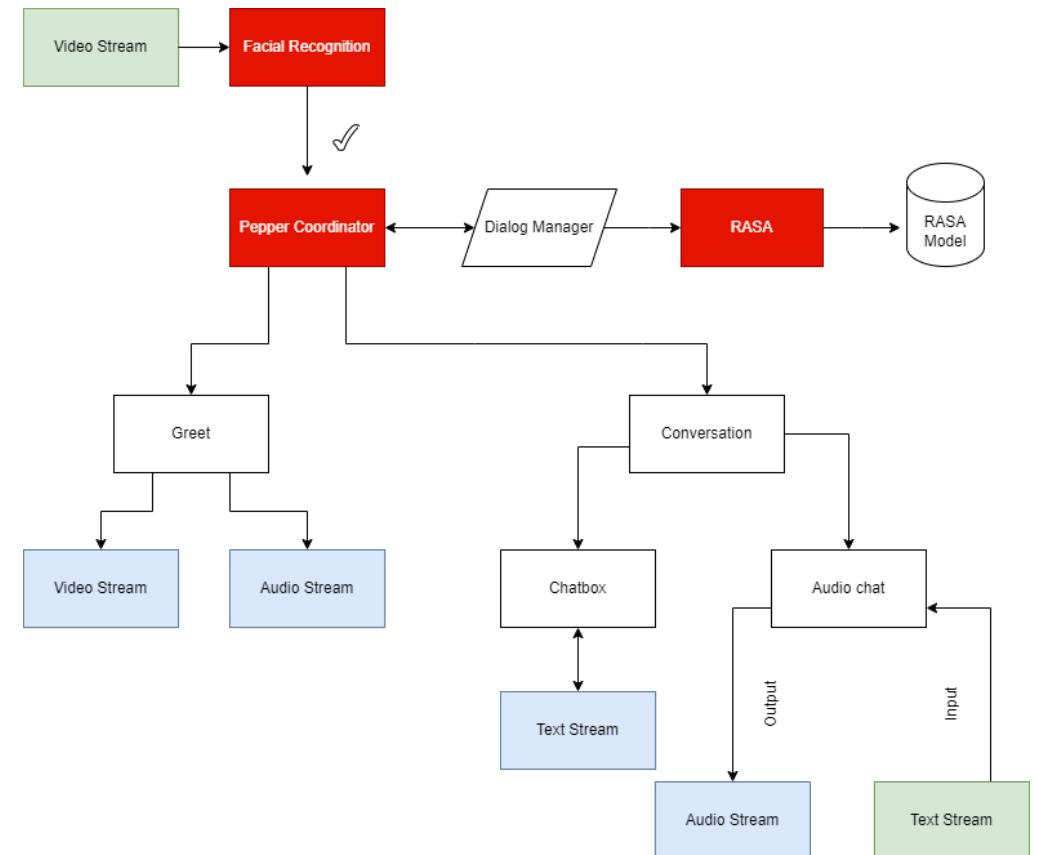
User Interaction Flow:

Detection: The camera captures the student's face.

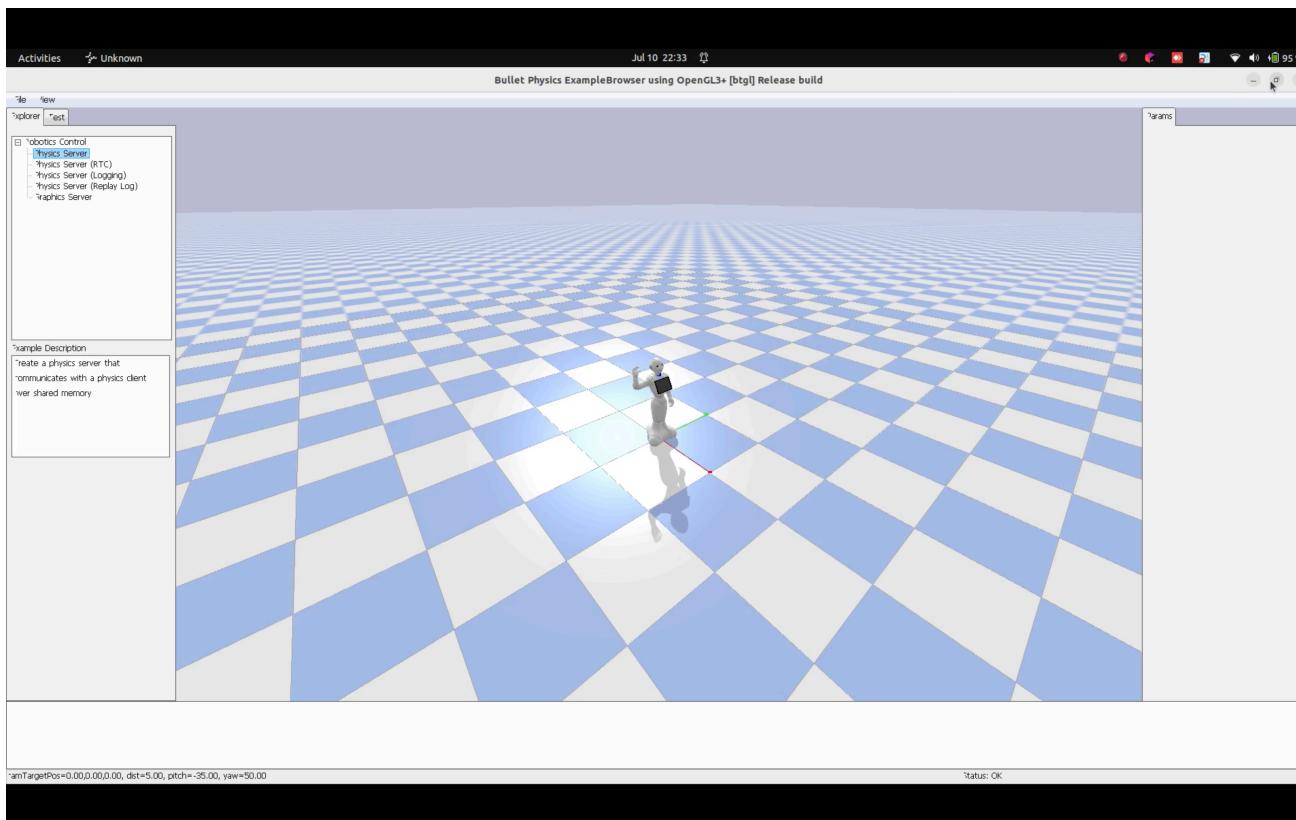
Recognition: The facial recognition software identifies the student.

Greeting: Pepper greets the student by name.

Conversation: The Rasa chatbot engages in a conversation with the student.



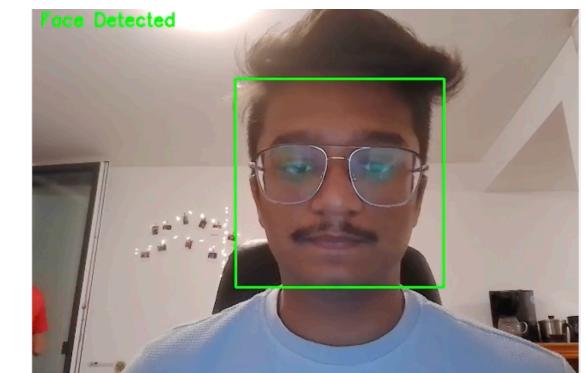
Demo



The image contains two side-by-side screenshots of a chat interface. The left screenshot shows a message from Pepper: "Hello from Pepper!" followed by "Adaptive signal processing looks interesting". The right screenshot shows a response: "Hello! How can I assist you today?" followed by "i need list of elective". Below these messages are two detailed descriptions of subjects:

Robotics - Computer vision - Evolutionary Computation - Theory and Application - Fault Detection and Diagnosis - Learning and Adaptivity - Mobile Manipulation - Multiagent Systems - Neural Networks - Probabilistic Reasoning Which one are you interested in?

Adaptive Signal Processing: Enhances signal processing for embedded systems. Covers deterministic/random signals, discrete-time methods, and time-frequency measurements. - Requires strong math/technical background and interest in applications like consumer electronics/automotive. - Includes lectures, exercises, and assessments via oral/written exams. Utilizes visual media, blackboard exercises, e-learning media (LEA), and technical articles. - Responsible: Prof. Dr. rer. nat. Dipl.-Math. Paul Gerhard Plöger



Ethical Considerations

- Facial Data

Your facial data is securely stored and processed in accordance with strict privacy standards. It will not be shared without your explicit consent.

- Interaction Language Quality

Interactions are designed to be inclusive and neutral, avoiding biases based on gender, caste, religion, or hierarchy.

- Final Outcome Disclaimer

Pepper suggestions are not certified by any Career counselling. So there are chances it give you a wrong choice of elective.

