



Development of an Electromechanical End-Effector for Automated Sauce Dispensing

Project topic for Oberseminar 2025/2026

Description:

The ComNets chair is exploring automation solutions for its internal "Cetibar" catering environment. This project addresses the challenge of automating food preparation tasks, specifically the controlled dispensing of sauces onto items such as salads.

The core goal is to conceptualize, design, and test a novel robotic end-effector (a "sauce squeezer"). This device will be mounted onto a standard robot flange and will utilize an electromechanical system to precisely dispense various sauces. The project involves the complete development cycle, from the initial concept and design to the creation of a functional prototype. The final system will be tested in a practical application within the Cetibar, demonstrating its capability for automated food handling.

Students will be guided by our technical experts and will have access to resources such as 3D printers to facilitate rapid prototyping and testing.

Tasks:

- Develop a robust concept and detailed design for an electromechanical sauce dispensing mechanism.
- Fabricate a functional prototype of the designed system, leveraging in-house manufacturing capabilities like 3D printing.
- Mount the prototype onto a robot flange and integrate its electrical controls with the robotic system.
- Conduct functional tests to evaluate the performance, precision, and reliability of the sauce dispenser in a realistic application scenario.



Keywords: Robotics, 3D Printing, Mechanical Design, Mechatronics

Language: German, English

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