Tech Offer:
ROBOTIC CHEF ASSISTANT

Technology Overview

The Robotic Chef Assistant (SINGAPORE PATENT APPLICATION NO. 10202500051R "ROBOTIC CUTTING SYSTEM") automates food preparation tasks such as chopping, dicing, and slicing. It enhances precision, speed, and safety in kitchens, reducing manual labor. Ideal for commercial kitchens and food processing plants, it mimics skilled chefs using AI-driven vision and robotic control to adapt to various food types.

Technology Features & Specifications

- AI Vision System: Identifies food types and selects optimal cutting techniques.
- Robotic Arm with Knife: Simulates chef-like precision for uniform cuts.
- Food Holding Mechanism: Secures food during cutting for safety and accuracy.
- Controlled via Python-based software integrating ML models and safety protocols.

Potential Applications

- **Professional Kitchens:** Enhances speed and consistency in food prep.
- **Food Processing Plants:** Automates bulk cutting with precision.
- **Culinary Schools:** Demonstrates automation in culinary training.
- **Smart Kitchens:** Appeals to home chefs seeking automation.

Possible Collaboration Mode

✓ R&D Collaboration

✓ Licensing

✓ Test Bedding

TRL Level :

TRL 5 – technology has been validated in a simulated or laboratory environment but not yet tested in a relevant real-world setting.

Benefits

- **Improved Safety**: Minimizes risk of kitchen accidents.
- **Consistent Quality**: Delivers uniform cuts and presentation.
- **Labor Savings**: Reduces manual effort in repetitive tasks.
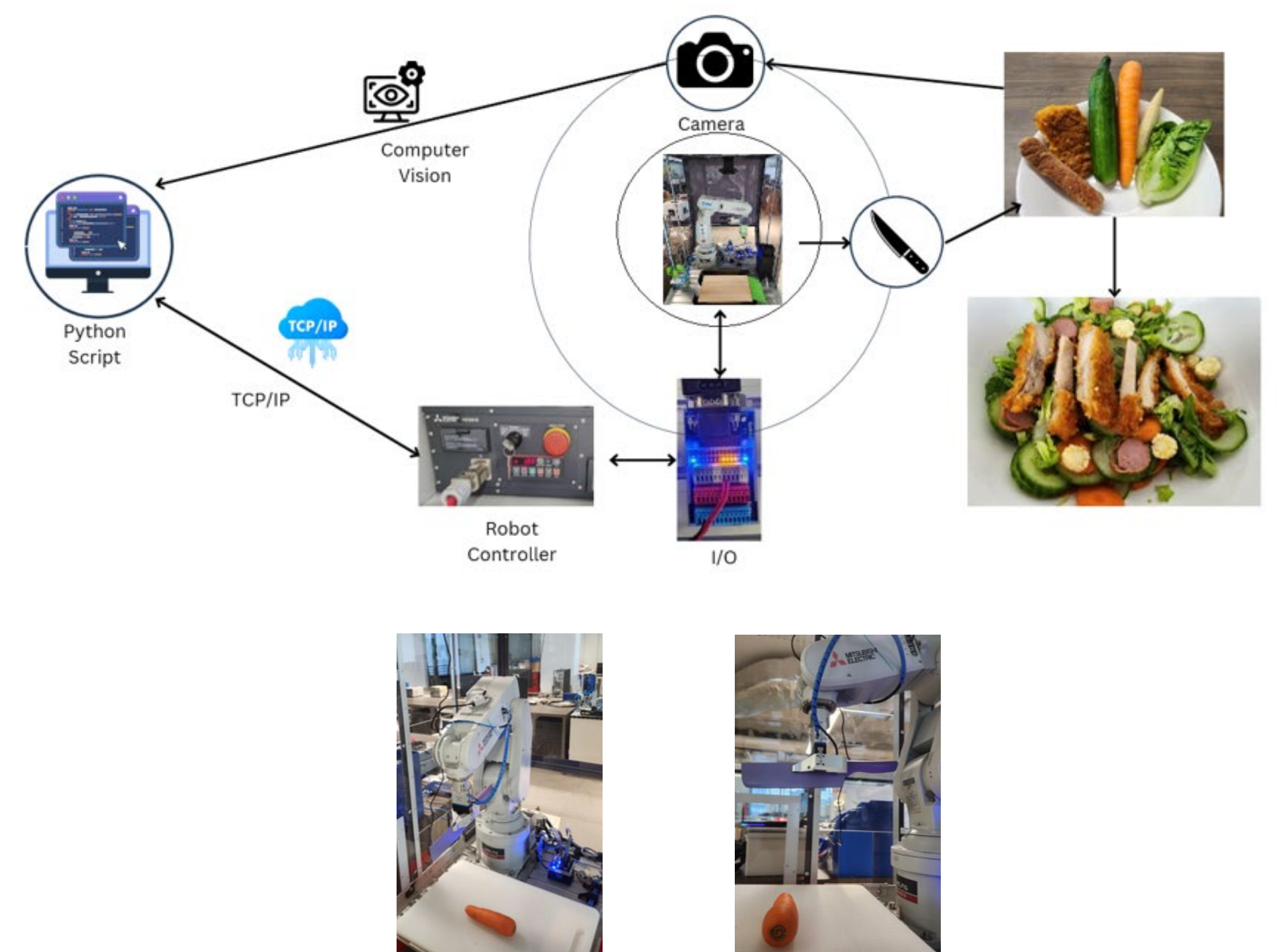- **Adaptability**: Suitable for diverse kitchen environments.

Figure 1: Overall Configuration

Market Opportunities

The Robotic Chef Assistant automates food cutting across:

- Home Kitchens: Aids families, seniors, and users with limited mobility.
- Professional Kitchens: Supports chefs in hotels, restaurants, and hawker centres.
- Catering Services: Showcases robot-prepared dishes for efficiency and appeal.
- Bulk Prep Settings: Ideal for banquet and meat-cutting operations.

Singapore's robotics market is projected to reach USD 418.88M by 2025, with strong growth in kitchen automation aligning with rising demand for precision and labor-saving solutions.

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