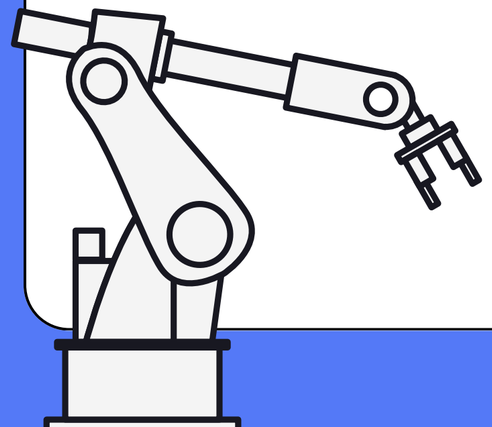
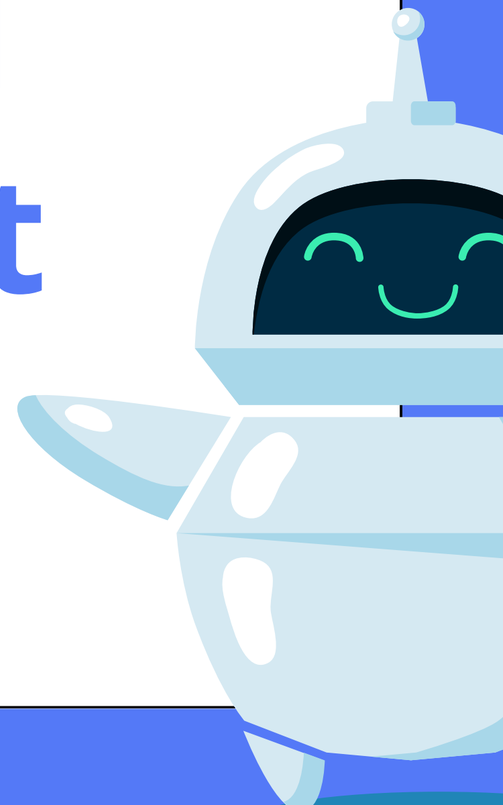
CPE101

MID TERM PROJECT

House-Keeper Robot





KFC sec B (B1)

ROBOT DESIGN

การออกแบบหุ่นยนต์

Performance Works As Designed (PWD)
ประสิทธิภาพการทำงานใช้งานได้ตามที่ออกแบบ

Creativity
ความคิดสร้างสรรค์

Strength
ความแข็งแรง

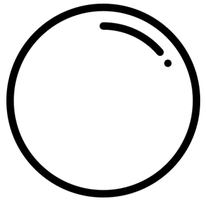
Maintenance of equipment
การดูแลรักษาอุปกรณ์

PERFORMANCE WORKS AS DESIGNED (PWD)

ประสิทธิภาพการทำงานใช้งานได้ตามที่ออกแบบ

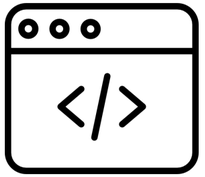
Walking Mechanism

The robot's walking mechanism works smoothly and reliably. Can control direction and adjust position. This is necessary for approaching the ball and reaching the designated point.



Ball Manipulation

The robot uses a Husky Lens that allows it to detect and pick up the ball with precision and has fine-tuned mechanisms to ensure it can hold the ball firmly without falling.



Mechanics of Ball Catching

Our design 3D-printed arms that closely mimic the human arm that made from PLA material and the key innovation is seamless connection to servos with out modifications.

CREATIVITY

ความคิดสร้างสรรค์

Unique Design

Our robot features a distinctive and visually appealing design that sets it apart from conventional robots. The design isn't just functional, it's a creative expression of our team's vision.

Functional Innovation

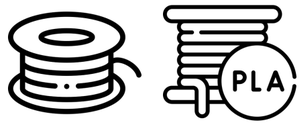
The core functionality of our robot is the result of creative problem-solving. We've developed creative algorithms and logic to enable it to walk up to a ball, pick it up, and place it at a designated spot efficiently.

Multidisciplinary Approach

Our project showcases creativity by combining hardware and software in a cohesive manner. The synergy between these elements demonstrates our ability to approach complex challenges from multiple angles, resulting in a well-rounded and creative solution.

STRENGTH

ความแข็งแรง



Material Selection

We carefully chose materials that offer the necessary strength-to-weight ratio for the robot's components. This ensures that the robot remains lightweight while being structurally sound.

Mechanical Integrity

The mechanical components of our robot, including the chassis, joints, and connectors, are designed to withstand the stresses and strains associated with its movements.

Weight Distribution

We paid close attention to the distribution of weight across the robot's body to maintain stability and prevent tipping during movement. This contributes to its structural strength, especially when carrying objects.

Modularity

Our robot's modular design allows for easy maintenance and replacement of individual components. This not only simplifies repairs but also adds to the overall structural resilience.

MAINTENANCE OF EQUIPMENT

การดูแลรักษาอุปกรณ์

Modular Design

Our robot is designed with modularity means that individual components can be easily replaced. This simplifies maintenance by allowing us to address specific issues without having to disassemble entire robot.

Spare Parts Availability

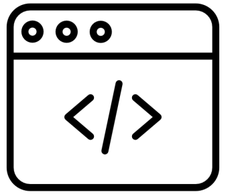
We maintain a stock of spare parts and replacement components, ensuring that we can quickly replace any worn-out or damaged parts to minimize downtime.

ROBOT DESIGN

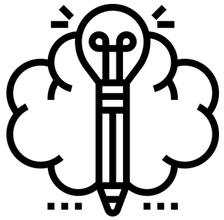
OVERVIEW

Walking Mechanism

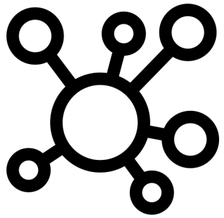
Mechanics of Ball Catching



Unique Design



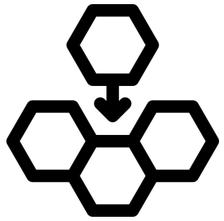
Multidisciplinary Approach



Material Selection

Weight Distribution

Modular Design



Spare Parts Availability

CODE

โค้ด

Code works correctly

ทำงานถูกต้อง

Algorithm - Cause and Effect with Steps

อัลกอริทึม มีความเป็นเหตุเป็นผล มีขั้นตอน

Code is executable

โค้ดสามารถรันได้

ROADMAP AND PLANNING

แผนงานและการวางแผน

Project Scope and Objectives

Stakeholder Identification

Vision and Roadmap

Resource Allocation

Communication Plan

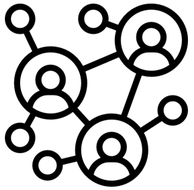
Monitoring and Control

ROADMAP AND PLANNING

1

Project Scope and Objectives

We clearly outlined our objectives, which included designing a robot capable of walking up to a ball, picking it up, and placing it at a designated spot.



2

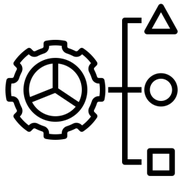
Stakeholder Identification

We identified key stakeholders, including team members, advisors. Understanding their interests and expectations was essential for effective planning.

3

Vision and Roadmap

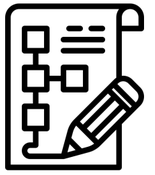
We created a vision statement outlining our long-term goals for the project that guided the development of a detailed plan outlining the steps. Important events and the length of time necessary to achieve our objectives.



4

Resource Allocation

To ensure the project's success, we allocated resources carefully. This included identifying the necessary hardware components, programming tools, and team members with specific skills.



5

Communication Plan

Effective communication was vital. We developed a communication plan that included regular team meetings, progress updates to stakeholders, and a system for reporting any deviations from the plan.

6

Monitoring and Control

Throughout the project, we continuously monitored our progress against the roadmap. When deviations occurred, we had mechanisms in place for making informed adjustments to stay on track.

Thank you!

Have a great day ahead.