NEO SPIDER

KICKOFF PRESENTATION

NEO CULTURE CLUB

Presented By: Duc Tran

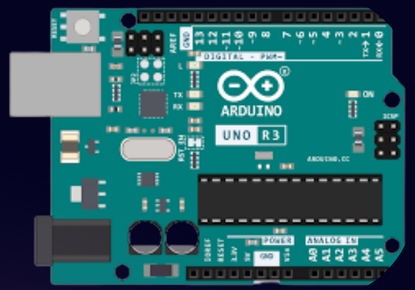
AGENDA

1. Scope
2. Key features
3. Findings
4. Timeline
5. Task Allocation

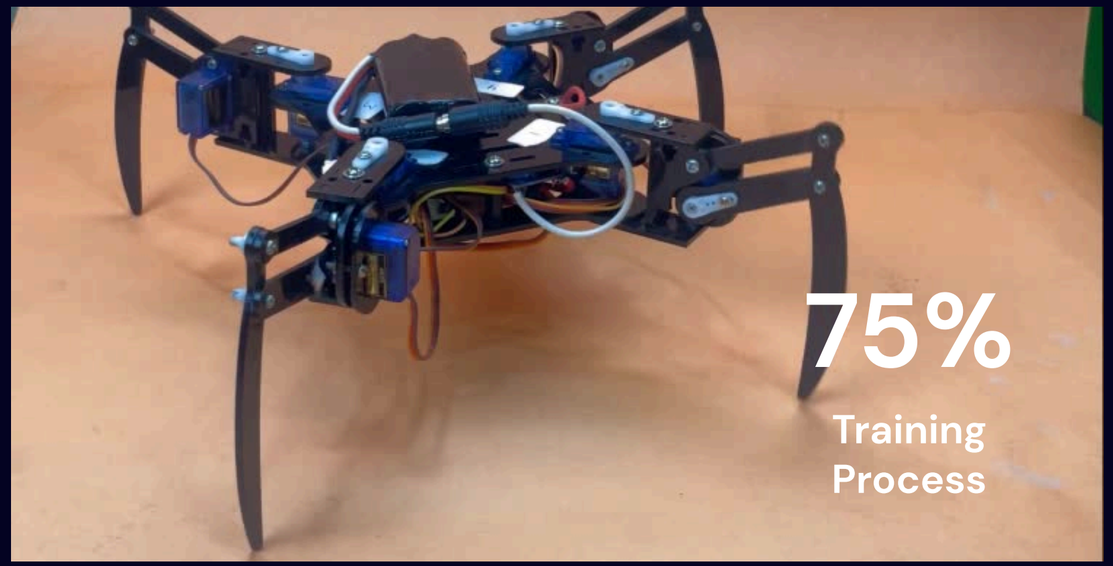
1.SCOPE

Build a quadruped walking robot using Arduino Nano and 8 servo motors.

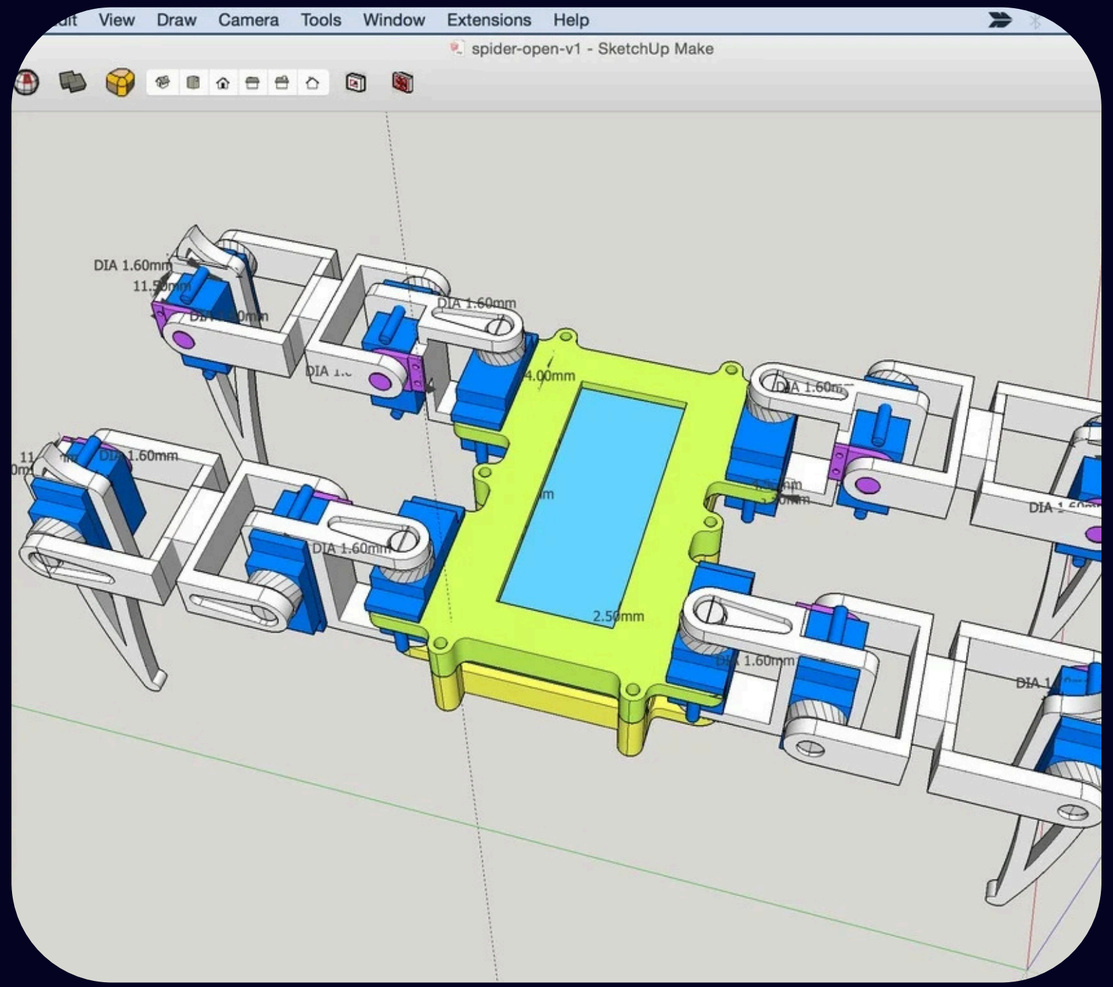
- Creep gait and basic inverse kinematics.
- Modular design for future add-ons (ultrasonic sensor, Bluetooth control).



Target: Achieve stable walking, turning, and sitting/standing behaviors.

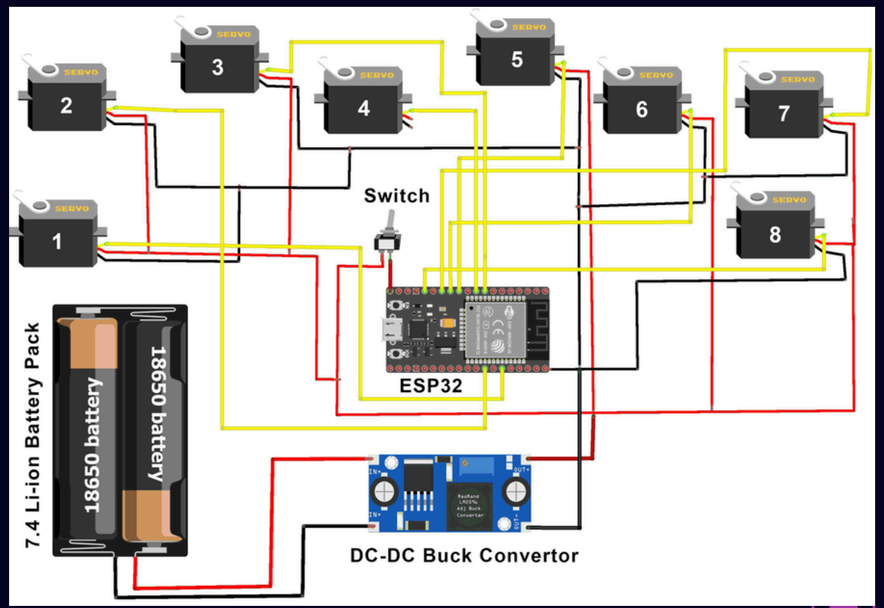


CAD DESIGN

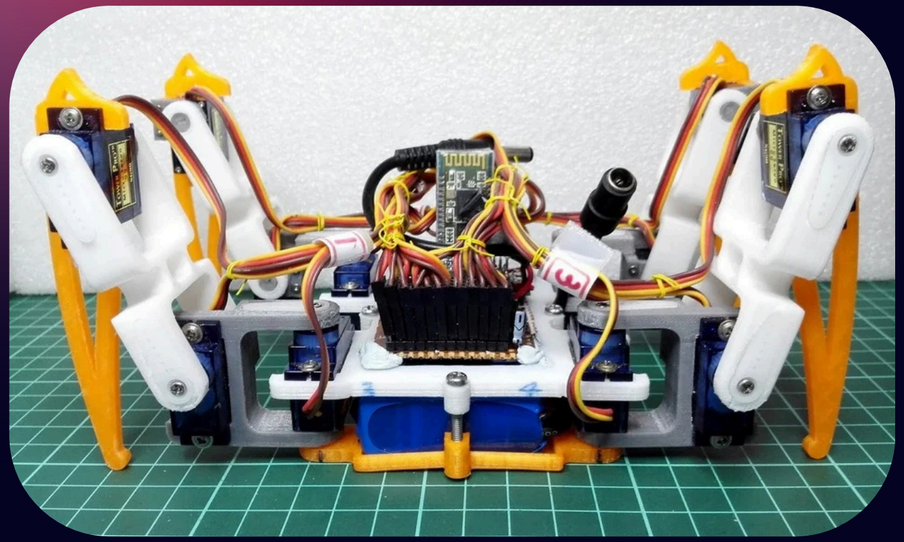


Develop stable walking mechanics
Neat organisation
3D Printing precision

CIRCUIT DESIGN



DESIGN OPTIONS



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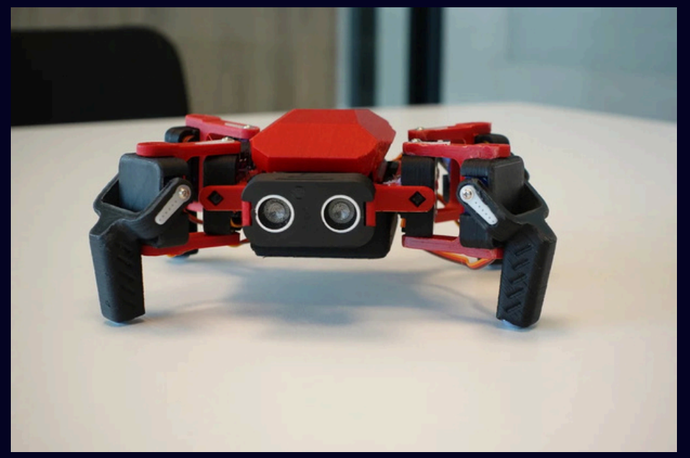
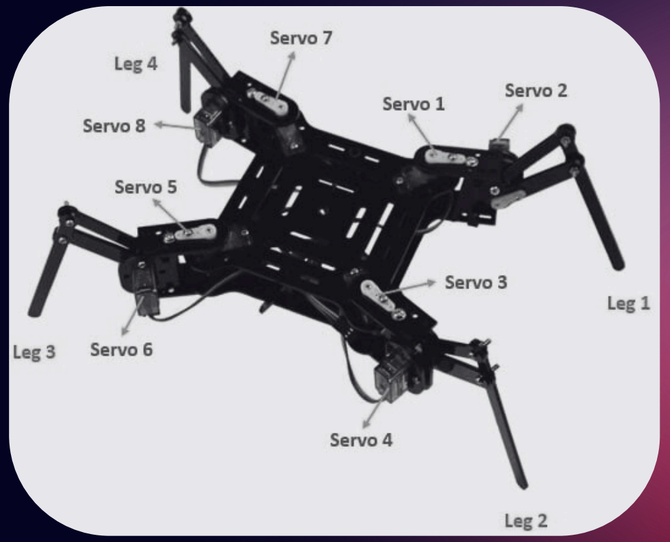
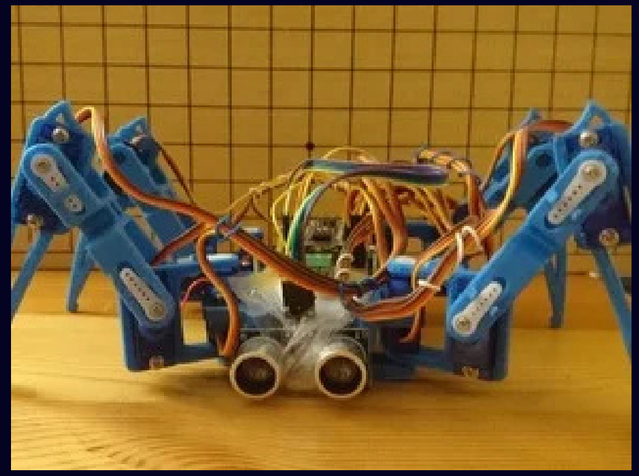


WintermuteAI 2024



Gourav Tak 2024



ektor 2022

KEY FEATURES

01

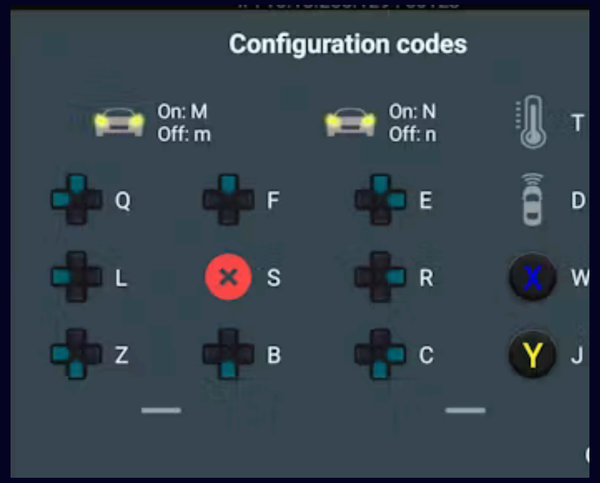
Fully assembled NEOSpider hardware

Pre-programmed movement functions:

- Standing, sitting
- Walking forward/backward
- Turning left/right

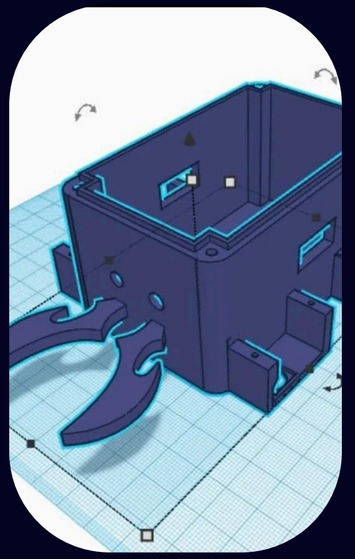
02

Bluetooth module for wireless control



03

Documentation & Future Developments

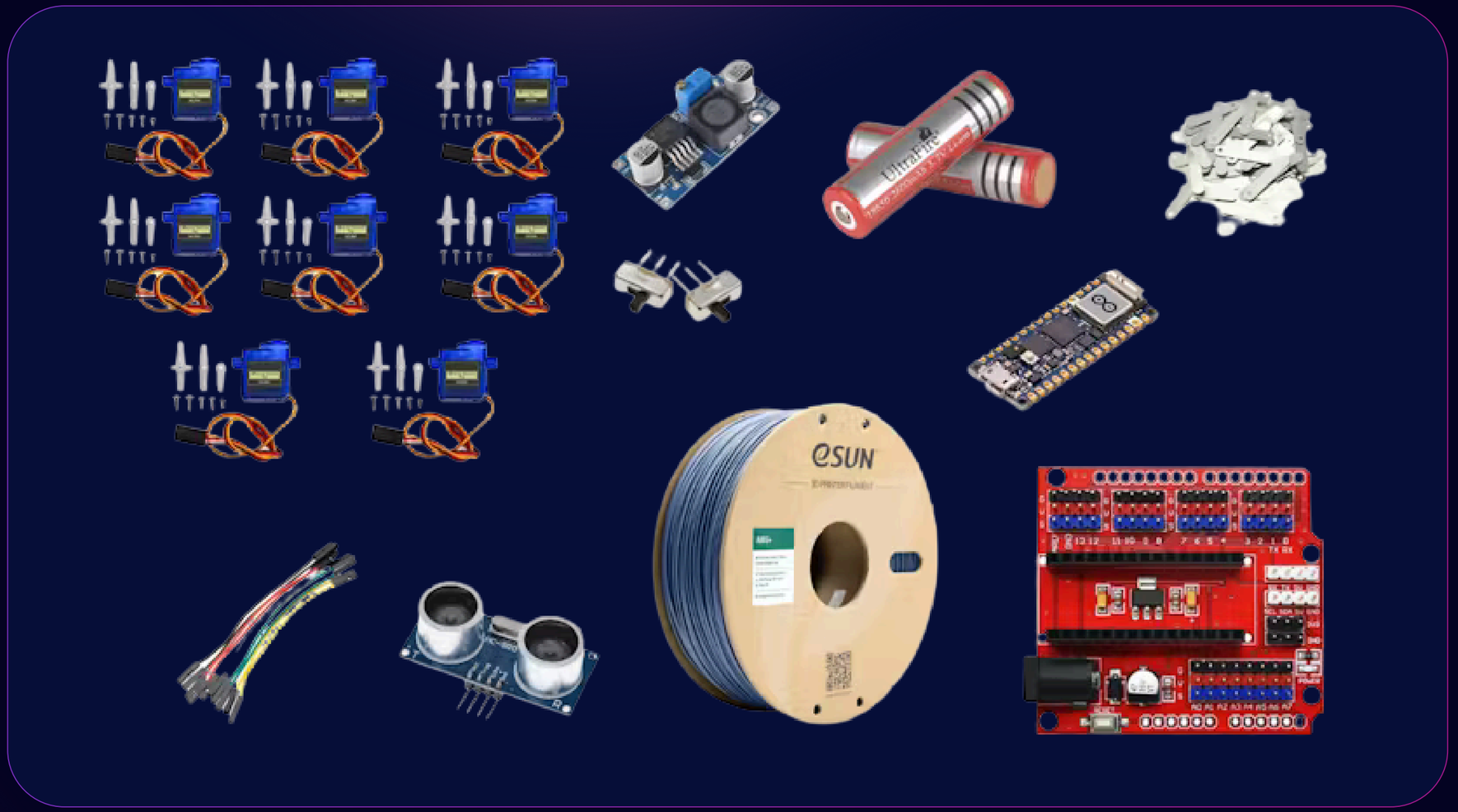


OVERVIEW OF MATERIALS

- 8x SG90 servo
- 1x 3A step-down module
- 2x 18650 batteries (tested | cheaper, but not tested)
- 1x switch
- 1x power connectors
- 1x Ultrasonic Ranging Module HC-SR04 (Optional)

Control Board:

- Arduino RP2040 Connect
- I/O Extension Board Module for Arduino Nano (Nano Shield)



TIMELINE

TASK ALLOCATION

Week	Tasks	MEMBER
5–6	CAD design & 3D printing parts	DUC TRAN & HUY NGUYEN (ROBO)
6	Mechanical assembly (legs, body)	BACH DINH (ROBO)
7	Electronics: Wiring & Shield	SANG TRAN (ROBO), TAI HUYNH (SOFTWARE)
8–12	Core programming & motion calibration	MINH TRAN (SE)
13	Final demo + documentation submission	ALL TEAM MEMBERS

SEE YOU NEXT TIME