

Pookie Doggie Doo

Pookie the Show Dog

A project in IN5590 by Emma Fjeld Brovold (esbrovol@uio.no) and Helene Bye Humberstet (helenbhu@uio.no)

1 Intro

Our robot is inspired by a typical show dog. Our focus has been on making it appear as animated as possible, both when static and while performing tricks. Our initial goals for tricks were:

- Sit
- Lie down
- Paw
- Dance
- Secret handshake

2 Tools

The most important tools we used for this project were:

- 7 Dynamixel AX12
- 2 Dynamixel AX18
- U2D2 power hub
- Color 320x240 Touchscreen, 2.8 inch, ILI9341 Controller
- Teensy 4.1

For optimization, we aimed to make the robot behave as lifelike as possible. We did this by optimizing the eyes, the movements of the robot during the tricks, and getting it to recognize the voice commands.

In order to make the robot move in a dog-like manner, we studied how real dogs behave. For each trick, we identified the different sub-positions of the movements, and adjusted our parameters to make it look as similar as possible.

When designing the eyes, we studied cartoon dogs (for example, Lady and the Tramp) to create an animated look. For speech recognition we used VOSK, a speech recognition toolkit with an API to python.

3 Conclusion

We achieved everything we wanted for the tricks. We initially planned to add a moving tail, but changed our minds to focus on leg and head motion.

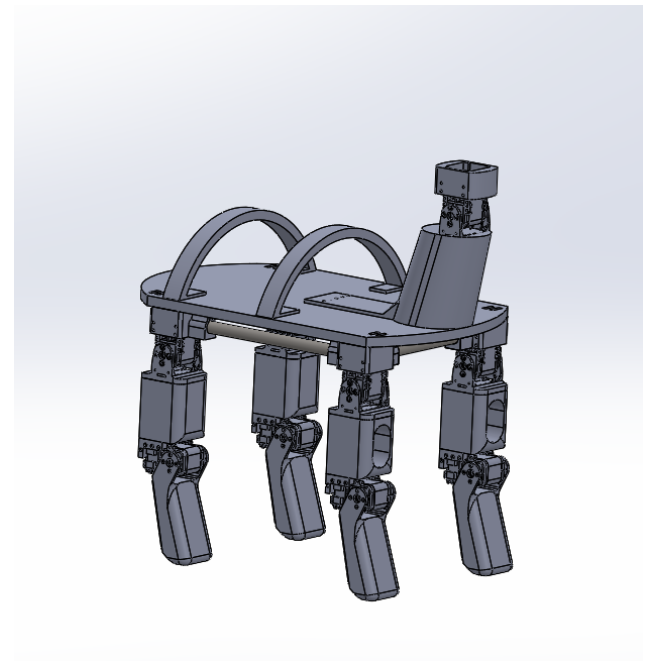
As a result of our optimization the robot is often able to recognize our commands, and perform the corresponding tricks with coordinated eye movements.

Regarding future work, we would like to improve the dog's ability to recognize the commands more precisely. A thought we had was to create a type of speech recognition that specifically searches for the goal commands by re-evaluating words that sound similar. In addition to better command detection, we could add a second motor to the head to give it two degrees of freedom, which would allow more natural and expressive head movements and make the robot's movement feel more lifelike.

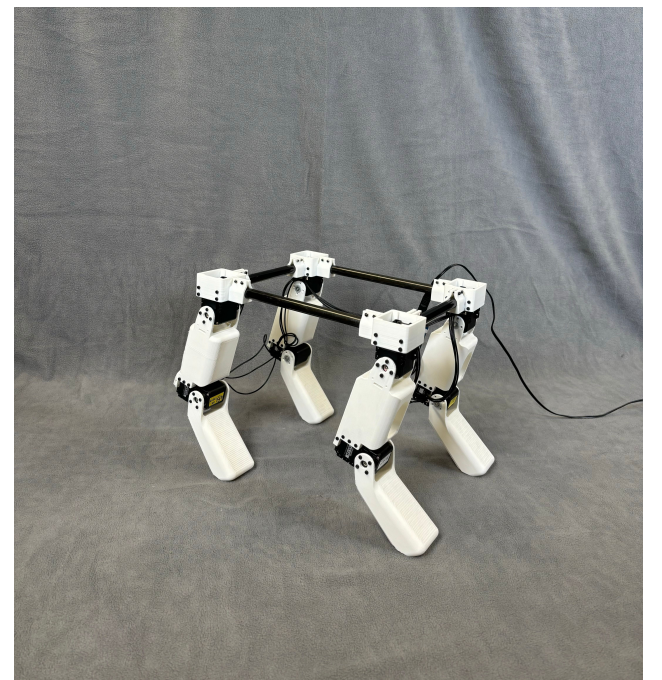


- The final 3D printed head with an OLED screen as eyes.

Extra figures



- The hardware setup for the robot body.



- The setup of the legs.



UNIVERSITY
OF OSLO

GitHub repo →

