COURSE PROJECT 2023

Roles:

Project manager, Coder: RK

Communication, Coder: LT

Sensors, Coder: VJ

Collaboration:

We had a Github-repository and communicated through Discord, almost all work were done in Discord voice channel, where the person with Sensortag streamed the VirtualBox. While the person was streaming, everyone suggested solutions to the problems we faced and thought about the problems together. The workload was same for everyone and I think we succeeded in that aspect. Here is the link for the Github-repository:https://github.com/RoniKarppinen/JTKJ\_Harjoitustyo\_2023

(Not sure if it is visible with the link)

Sensor data  
 We collected data using MPU9250-sensor and put them into an excel sheet. The mentioned sensor provides six different measurement values per data query. With the collected data, we could easily determine the fitting threshold for our movement recognition functions, which are “lift”, “jerk” and “on the back”. According to our measurements, when turning the whole thing upside down, the acceleration value in Z-space will give us positive values close to 0 instead of -1.   
 We also made use of OPT3001-sensor, which is a sensor that measures intensity of light. Depending on the lux value, our code would initiate different action actions, either “petting” or “feeding” it. When the OPT3001 sensor detected low light intensity, the code would respond by “petting” it. And when the sensor detected high light intensity, the code would respond by initiating a “feeding” action.  
 Integrating both sensors together enabled us to collect precise movement data and respond to changes in ambient light, which helped us to make our movement recognition functions more specific.

Theres pictures of our graphs below this and the link to the spreadsheet is [here](https://docs.google.com/spreadsheets/d/1YCgtqo01mo0t1Xn4ftDUq8ZqEDg3Fol85nOScVIw6J0/edit?usp=sharing). Also video links for the movements: [lift once](https://drive.google.com/file/d/1W-i0wuQolk3lM_wLkprg8hZUtXfMhaP6/view?usp=sharing) and [jerk once to cable direction](https://drive.google.com/file/d/15GZB5h_RqdQ_-ocf-mdzIEYBa4xbtGpA/view?usp=sharing)

Some of our recorded data in graphs:  






