Learning Diary

21.1 & 24.1

Introductions in our team and split up into smaller groups. Brainstormed on how to do our project.

28.1

We started on some PowerPoint presentation with our ideas, except my group members were away at the time, so I had to work solo, and they’d then contribute to it later at home. I also created a cool illustration.

31.1

Had our presentations. Afterwards we brainstormed and decided on a few things on how to do our project. We also split into different groups based on our expertise, I was put on the UI/UX team because I’m on the game competence track.

4.2

We decided on a plan on how to create an app for multiple displays in python. We’ll have to research how to do it properly.

7.2

Was absent for medical reasons. At home I created a base UI for our app. I researched what to use, and apparently Tkinter is pretty good for Python apps, though I had some difficulty with getting it to display on multiple screens. Apparently, either Windows or Tkinter does not like fullscreen on multiple screens.

11.2

We discussed in our individual teams on how to move on with the project, as we had some questions about some stuff. We’ll have to research it at home.

14.2

Talked with UI team about solutions for our questions last time.

Had a discussion with our coach about team atmosphere. No huge progress towards our actual project, but our project leader sent an email to the PO asking for a meeting (finally).

18.2 & 21.2

Winter break.

25.2

I had upgraded our app during winter break week, so today I showcased my progress. Now there is actual functionality on both screens. I created a patty cooking simulation, will have to add it to the app later.

Vibe was pretty good in our team, even with our coach. Today my main task was to code a simulated patty view app, which went well, except for one very annoying, but non-destructive bug.

28.2

Added the simulation thing to the app and tweaked it a bit, e.g. added functionality for it to open in single-screen mode if a second monitor is not detected.

We are deciding to go the AI route after all, even though we were against it, but we don’t feel like there is any other proper and cheap way to get it to work.

We decided on who was going to be in our new machine vision team, and the problems with machine vision in our project. We also had a meeting with some other students who have created some kind of machine vision software as their thesis project. Also, we had a meeting with the PO’s tech dude for some clarifications. Also, did our Motorolas.

4.3

Our thermal camera plan is a bust, due to physics, which is unfortunate. Also, it would have been a bit expensive. We will just use a regular webcam.

7.3

I am researching what and how to do the AI stuff. Apparently, a thing called YOLO is a good AI model. It requires images and labels for said images.

11.3

????

14.3

I added a color vision system to the main app, based on Alex’s code, which seems to be extremely broken (like he had hardcoded the values). Mine seems to be a bit better, but it still seems kind of bad. It just takes basically the hue of the displayed burger images, but I feel like it gives out some BS answers.

18.3

Tried to fix the color vision at home, still not great.

I showcased the color thing and said maybe let’s not do it, but our coach insists on us doing it (wtf).

I added the camera functionality to our app. It basically opens the camera or webcam if there isn’t an external camera. I thought it was broken for a long time, tried to fix it multiple times, because it was stalling when initializing it. In fact, though, it just takes like 30-45 secs to open the damn camera, so I originally had good enough code.

We will need images for training the AI, so the other people are doing that while I’m programming the stuff to get it to work. Also, I’m going to use a program called Imglabel to get the labels into the images. I think we need reasonably similar images for training the AI. And we will need a lot, like hundreds of images.

21.3

I learned that we would need a lot of variety in the images, so I had to scrap like 90% of the images collected. Oof. But I also learned that there is a method to get a lot of variety from a single image, called image augmentation. With that method we will 3x-4x our images.

25.3

A team went to take some footage from F&B to get it for the AI training, but it looks like absolute doodoo. Hopefully though it is ok… The other guys in our group will have to take screenshots from the video of the burgers so that I can then create the datasets from them.

Also, I tested a pre-trained YOLO model at home, and it seems to work well. I also added this AI stuff into our main app.

28.3

We got a visit by one of the machine vision guys (Lasse). He gave us some bad news; we had to scrap basically all our datasets that we have compiled thus far. Apparently, we’ll need thousands of images for the datasets, and we barely had a hundred. But thankfully he introduced us to a program that takes videos and segments them into images and makes them into training datasets. He taught me how to use the program (SAM 2), and it seems quite difficult. First, it only works in Linux, and I have never used Linux properly. Second of all, there seems to be quite a lot of bugs in the program, because we have to use his custom code to run it, which is apparently a bit outdated.

1.4

I have been hard at work getting the program to work, but every time I fix a bug a new one appears… Also, the program is very slow…

Also, I guess I’m getting better with Linux.

4.4

I have the program in a good enough working order. It still is buggy, but at least it runs and does the work, even if I have to manually run half of the scrips. The dataset creation itself though isn’t too difficult, but it is just painfully slow, about five hours each, and I have to do 18 datasets.

8.4

90% of the datasets are done!!! Had to create a few scripts to rename and re-label them because I didn’t realize they got named and labelled at a specific step, and I had been putting some placeholder names on them, but that wasn’t too difficult, even though it was a bit annoying.

11.4

Datasets are finally done!!!! I was smart enough to properly name the last few datasets. Now I just need to give them to Alex for him to train the actual YOLO AI model.

15.4

Alex finished training a model with the datasets from our original shitty video… And it doesn’t work. The god damn pre-trained base model works like 100x better, because our model doesn’t detect anything…

I actually found a website with training datasets for AI models, for free. Would have been nice to know like a month ago… Let’s hope that these work, as there seemed to be at least two decent enough datasets for burger detection.

As for a task, I don’t actually have much work to do, basically just standing by if Alex needs help with AI training, so I told our project manager Severi that we should probably start to make a document or presentation for the PO in case we don’t get a proper final working product, which seems very possible.

18.4

Easter weekend. I am continuing with the presentation, and I’m supposed to combine all of our individual codes and programs into the UI I created. Also, Alex has trained a model with one of the new datasets, and it still doesn’t work. Wtf are we doing wrong???

22.4

I worked on integrating the trained models into our app, which I had some problem with. Especially one of my teammates UI YOLO integration I had some trouble with getting to work, but I found out I technically didn’t need to add his code directly into the app, I could use either a subprocess or import it there. I decided to use a subprocess, because that seemed a bit easier, which worked, but it doesn’t look the best, which is fine because it’s just a prototype.

Now Alex and I should package the final prototype for the PO with some instructions and something to auto-install dependencies.

25.4

Today is the Capstone showroom. Thank god I don’t need to hold the presentation! Unfortunately, we didn’t win. During the showroom, I fixed a thing in the code. There were some ugly black bars in the video, and I wanted them gone, so I took like 20 mins and fixed it. Unfortunately, after I fixed that, the showroom was basically over, at least nobody came to our stand.

29.4

The last meeting and the meeting with the PO. I will be there to answer any questions the PO has about the app, UI and AI side of things. I will also be giving the packaged app to him.