Computer Graphics Project

MTAT.03.328

Spring 2020

Raimond Tunnel

I FIND YOUR LACK
OF PRACTICE . . .
. . . DISTURBING.

Contact Information

Raimond Tunnel

jee7@ut.ee

Organization

- 3 credits course
  - Contact hours $10 \cdot 1.5\text{h} = 15\text{h}$ = 0.58 credits
  - Individual work (63h): = 2.42 credits
    - Project idea – 4h = 0.15 credits
    - Project plan and timeline – 12h = 0.46 credits
    - Milestones $6 \cdot 7\text{h} = 42\text{h}$ = 1.62 credits
    - Presentation – 5h = 0.19 credits

Organization

- Project idea and plan (on your page) – 21.02
- Milestones:
  - 06.03, 20.03, 03.04, 17.04, 08.05, 22.05
  - 6 in total
  - 2 week long (one is 3)
  - 7h of work each
- Final expo – 29.05 (14:00 – 18:00)

How to pass?

- Create a project **plan.**
- Set up and achieve your own **milestones.**

  Failing those, gets you a strike.

  Do not get more than 3 strikes.

- Present the final result in the **expo + final video.**

  Missing that is an automatic failure.

The Final Result

- Some kind of a demonstratable software.
  - Standalone build

- Good project page
  - Clear milestone descriptions and pictures
  - Link to the final build
  - Link to the repo
  - Short video of the final build!

What to do?

- Anything you want related to computer graphics.

What to do?

- Extra practical work for a thesis
- So your thesis will be 9+3 or 30+3 credits of work.

What to do?

- Extra practical work for a thesis
- So your thesis will be 9+3 or 30+3 credits of work.
- Have a **clear distinction** between work done during the thesis and work done here.
- Ensure your practical work actually is **worth the extra credits**.

What to do?

- Work on some pet project you already have.
- You are working on it in secret anyway, right?

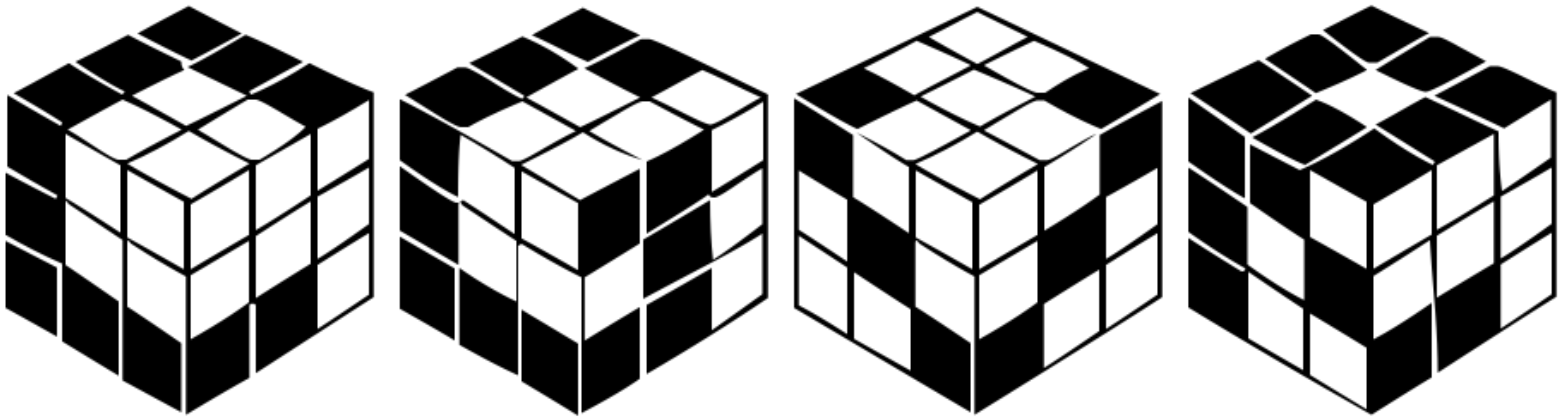
What to do?

- Continue a project from another course.
- For example the CG course.

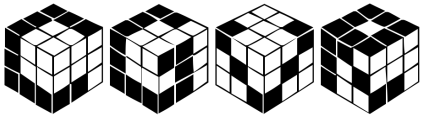
What to do?

- Take on a new project and learn new things!

The CGVR Lab



cgvr.cs.ut.ee



For You

- Good PCs

Walter, Torrance and Cook

Ryzen R9-3900X

RTX2080 Super

Phong and Blinn

I7-6700

GTX 980 Ti

For You

- Good PCs
- Multiple good monitors

For You

- Good PCs
- Multiple good monit
- Consultation

For You

- Good PCs
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- Consultation
- Many devices

For You

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- Many devices
- Books filled with algorithms

For You

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- Many devices
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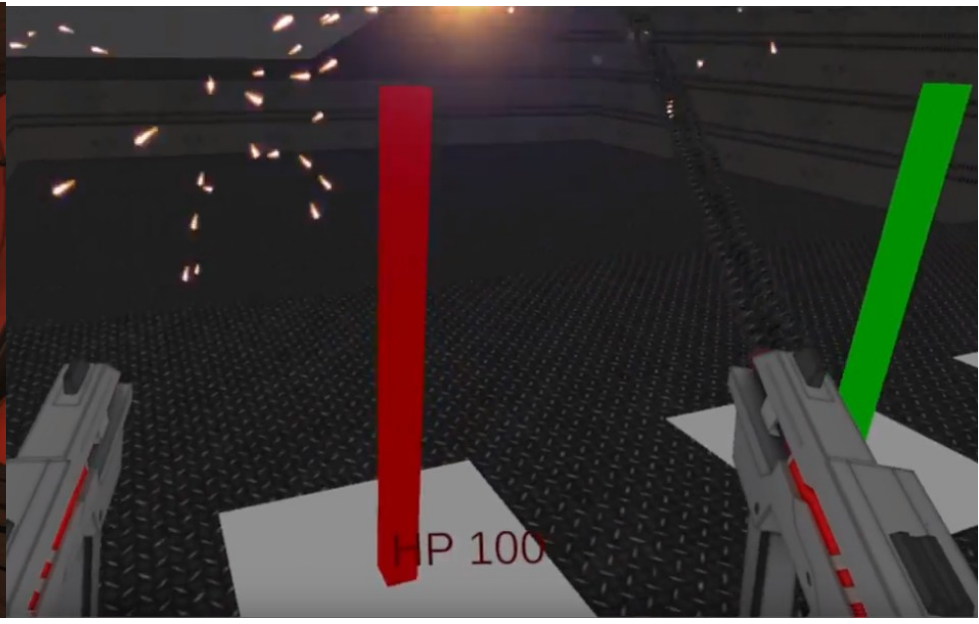
- Candy

Inspiration

https://cgvr.cs.ut.ee/wp/index.php/student-projects/

Reality: B by Kalle Ever



Vrena by Jens-Stefan Mikson

Inspiration

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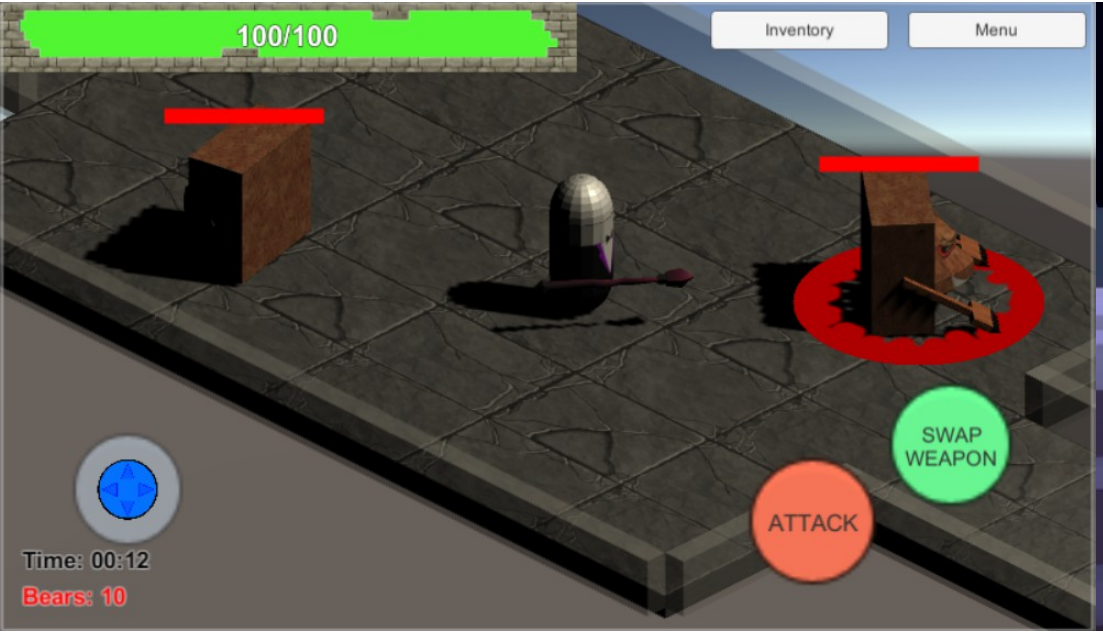

Crazy Doom Dungeon by Diana Algma and Marko Täht

VR Stealth by Andreas Sepp

Inspiration

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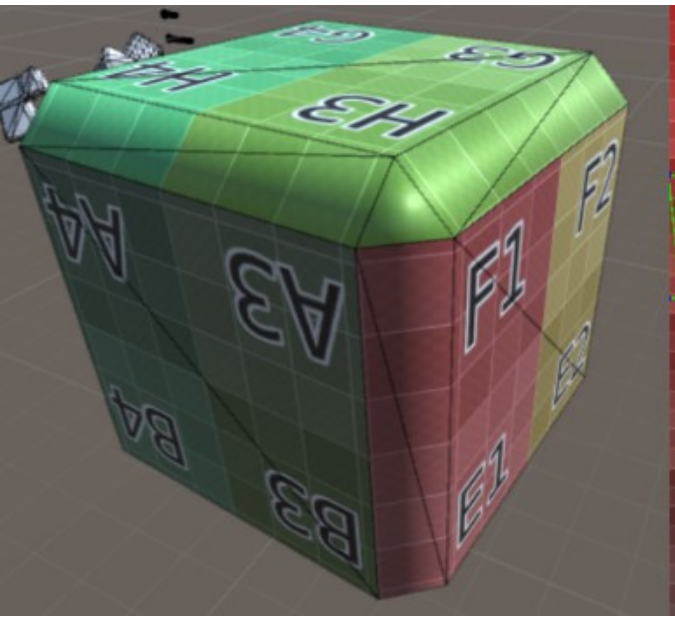
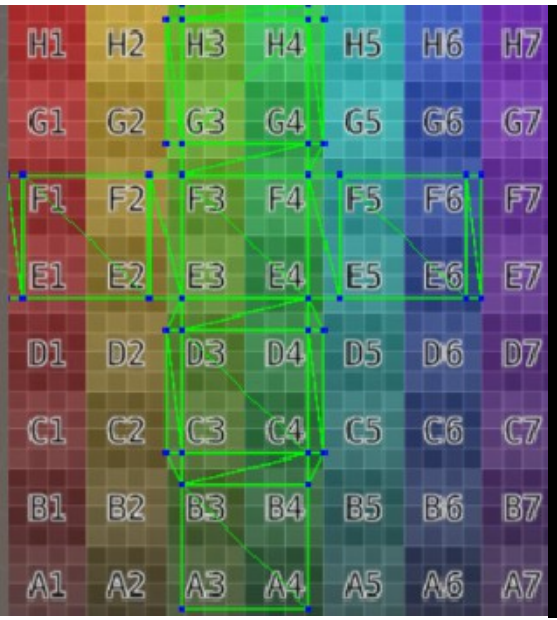
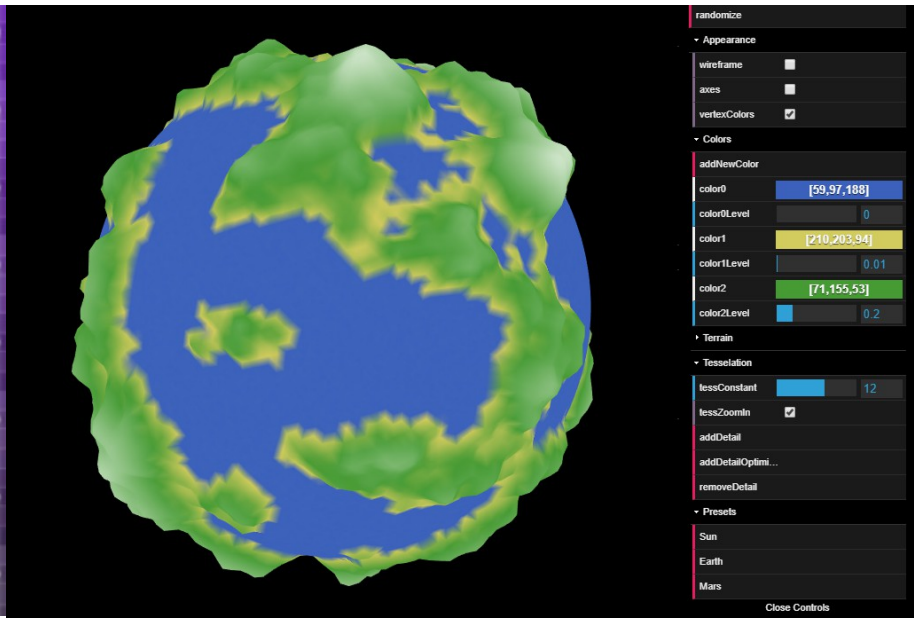




Edge Chamfering by Diana Algma



Procedural Planets by Erik Martin Vetemaa

Inspiration

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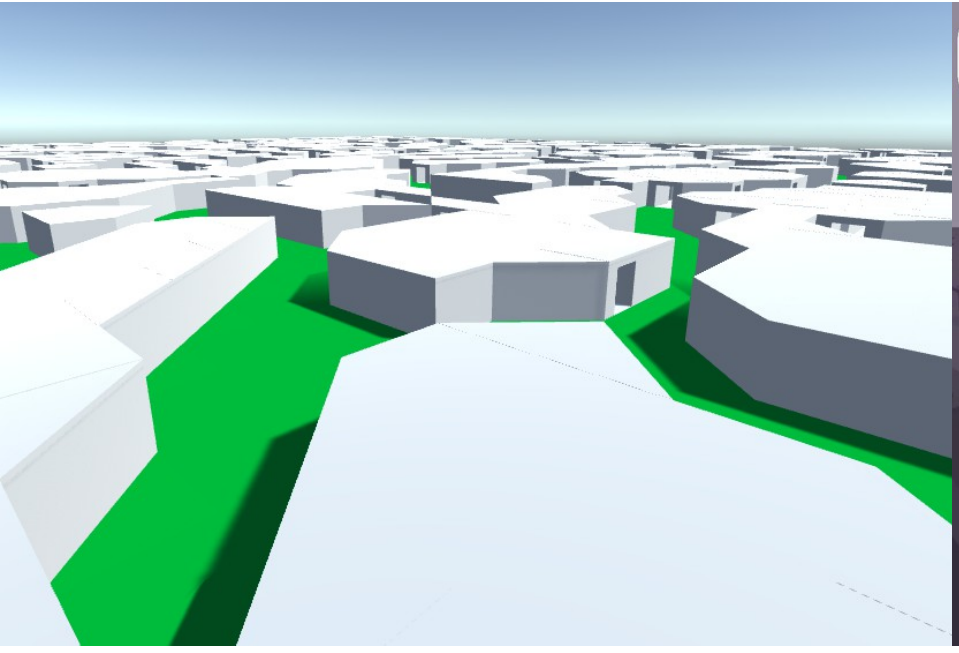
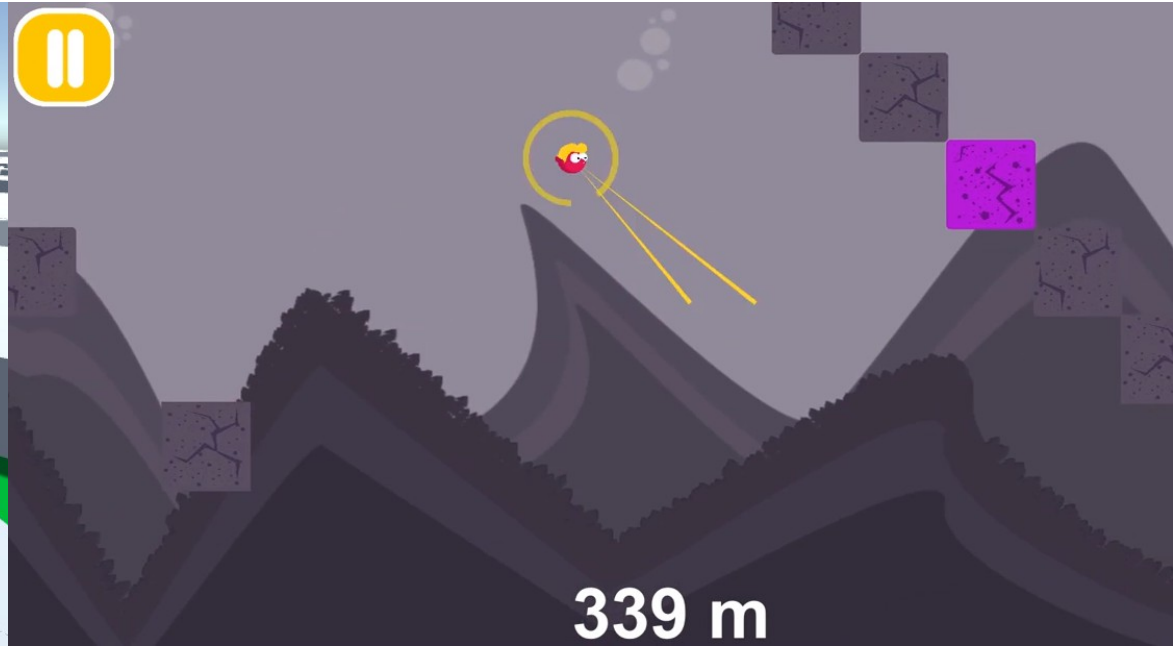


Procedural Maze by Meelis Perli



Slingventure by Daniel Nael

Project Management

- Have a plan!
  - You can always change the plan.
  - **A plan is better than no plan!**
- Plan should consists of:
  - **What do you want to have done?**
  - General steps in what order you do things.
  - Required technologies (if applicaple)
- Plan sould not consist of:
  - Detailed descriptions of every milestone...

Project Management

- Milestone

Milestone is a **promise to a *client*** of what will be done and working by the agreed time.

Project Management

- Milestone
  - What will be done in the next 2 weeks?
    - Specific research / content / feature / fix?

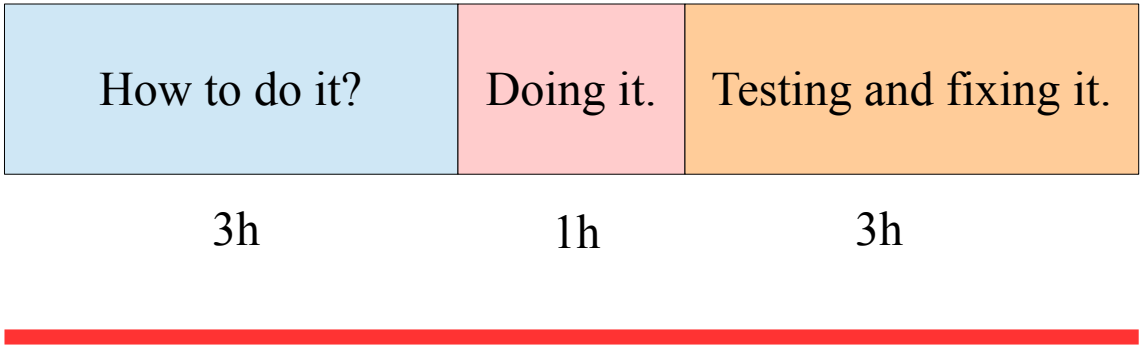
Goals

- Add a boss fight into the end of tutorial - (8h) ✓
  - Add boss movement pattern - (2h)✓
  - Add a way for the boss to interact with the player(take and give damage) - (2h) ✓
  - Design a fighting place - (1h) ✓
  - Add a health bar to the boss - (1h) ✓
  - Add a sequence taking place after the boss fight - (1h) ✓

- Add the shooting mechanic as an upgrade sold in the store - (1h) ✓

Project Management

- Milestone
  - What are you going to do in the next 2 weeks?
    - What specific research / content / feature / fix?
  - Include the estimated
    - Research time
    - Debugging time



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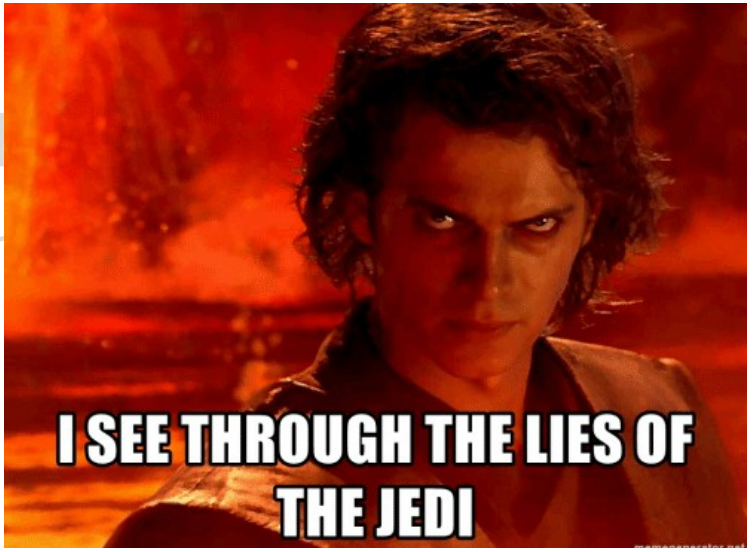
  - **Make sure you stick to the goals you proposed!**



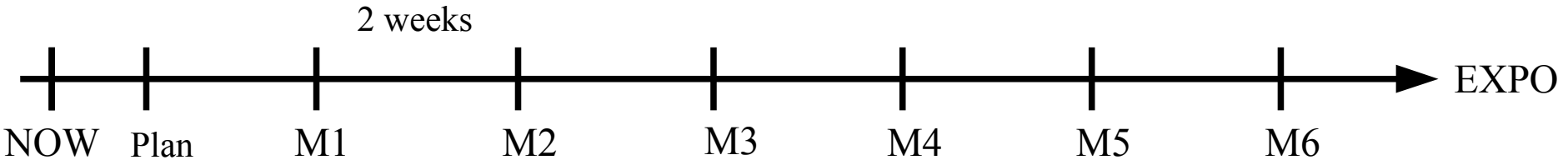
Project Management

- Milestone
  - What are you going to do in the next
    - What specific research / content / feature / fix?
  - Include the estimated
    - Research time
    - Debugging time
  - **Make sure you stick to the goals you proposed!**
  - Roughly 7h of work.

You can find 7h in 2 weeks, right?

Project Management

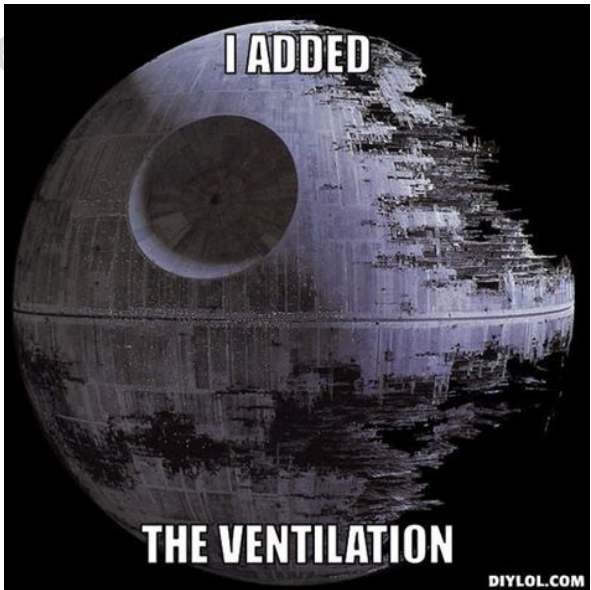
- Motivation
  - So you want something done by the end?
  - **Do a little bit throughout the semester.**
  - Little bit means a new feature in 2 weeks.



Project Management

- Motivation
  - So you want something done by the end?
  - **Do a little bit throughout the semester.**
  - Little bit means a new feature in 2 we
  - Does not have to be a big feature ...
  - ... but **does have to work!**

Promise to a *client / boss*!



Project Management

- Clarity
  - State your milestone **promise very clearly!**
  - Present your milestone **result very clearly!**
    - On your page and during the milestone defense.
  - Few well-formulated bulletpoints is the minimum.

Goals

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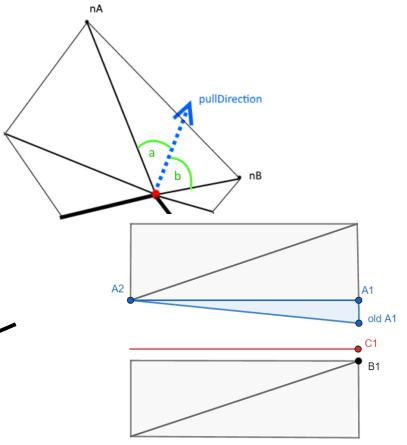
  - Add a sequence taking place after the boss fight - (1h) ✓
- Add the shooting mechanic as an upgrade sold in the store - (1h) ✓

(followed by descriptions, pics and videos for more details)

VS

Project Management

- Balance



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- Add the shooting mechanic as an upgrade sold in the store - (1h) ✓

Your page

We still did not filter out all the possible features, but selected the ones that are a priority. On the software side, we are progressing and majority of the main game-loop is ready. We started creating first set of actions for player and thinking about implementing those for AI as well. Designing Tech Tree is moved to next milestone. The first interaction mockup for player will be the "hangar". It will have low-poly with pixel textures. However, we settled on 3D world with 2D objects in it, similar to Fallout Shelter. In other words, 2.5D game.

Project Management

- Project Page
  - Do not start updating your page in the session!
  - Update it the day before.

Do **not** be this guy!

Project Management

- Project Page
  - Do not start updating your page in the session!
  - Update it the day before.
  - **Make it nice every time** (not later):
    - Clear
    - Concise
    - Understandable
    - Easy to grasp
    - Quick to grasp
    - Illustrated with proper materials
    - No grammar, spelling or formatting issues.

Project Management

- Result
  - Make it good and working, no matter how small!
  - Instead of taking a too big goal to never reach it.
  - **Engage people in the final expo.**

Project Management

- When in trouble: **ASK FOR HELP!**
  - CGVR lab people (Ats, Madis and Raimond)
  - Fellow students

Project Management

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- Keep your **milestones small, but specific**!

Project Management

- **When in trouble: ASK FOR HELP!**
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- Keep your **milestones small, but specific!**
- Do not restart or delete your project!

Project Management

- **When in trouble: A**
  - CGVR lab people (A
  - Fellow students
- Keep your **mileston**
- Do not restart or del
- Be positive!
  - **Look for and present positive results!**
  - Even if things look bleak.

Project Management

- Reflection
  - In the end you have implemented ~6 features
  - **Compare it with your original project plan**
    - Does not have to match
  - Think about how to continue...

Learning Goals

- Technical skills specific to your project
- Soft skills:
  - Planning.
  - Time estimation (very important).
  - Communication (milestone defenses)
  - Design (project page)
  - Presentation (expo)

Computer Science: MSc Practical Module

Goal:

The goal of the module is to ***prepare the student for entering the labor market*** *after graduation.*

Computer Science: MSc Practical Module

Goal:

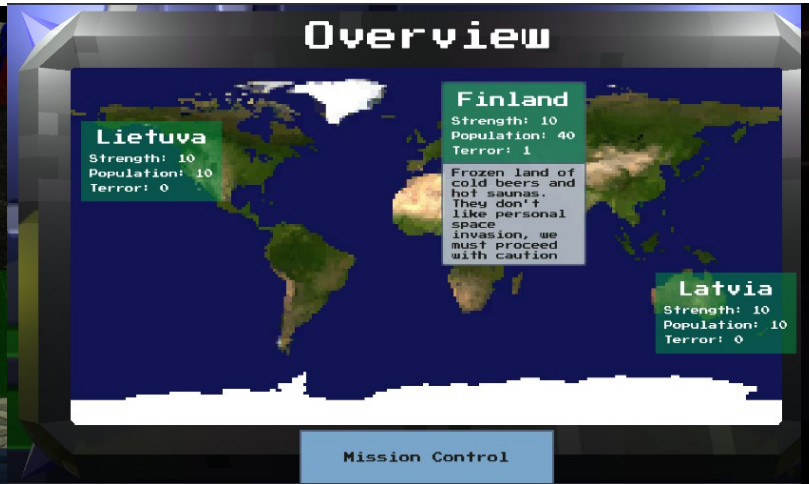
*The goal of the module is to **prepare the student for entering the labor market** after graduation.*

Learning outcomes:

*After completing the module the student has acquired the **basic practical skills to start work as a specialist**, an entrepreneur or as part of the teaching staff.*

Questions?

HOW YOU FEEL WHEN YOUR FRIENDS START WATCHING STAR WARS
AND THEN THEY HAVE QUESTIONS

Your Project

- What do you call it?
- What is the main idea?
- Want a joint project with another student?