Final Presentation Minor Skilled

Nils Meijer 466301 | 04-07-2023

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Introduction

- Low-poly tank combat game/simulator
- Explore the level, engage with enemy AI to the death

Learning goals

- AI development: expand knowledge on AI techniques , specifically behaviour trees
- System design: improve structuring large codebases
- Editor tools/visualization: help designers by mechanics visualizing

Problem solving

- Visualize as much as possible: gizmos, drawing it out
- Withdraw from a task: continue with another task or a real break
- Ask QA, or even ChatGPT (but not too much)

Product demonstration

Highlights 1/2

Move component

- Original plan with WheelColliders didn't work out.
- Now "faking" movement by adding force & rotating tank.

Turret & camera control component

- Visualized as much as possible (learning goal)
- Camera uses FSM (learning goal)
- Several combat views

Highlights 2/2

Shoot component & damage registration

- Mildots/range finding (scrapped)
- Drag coefficient

- Self/hostile inspection view

AI behaviour tree

- Framework built from the ground up (learning goal(s))
- Gizmo visualizations (learning goal)
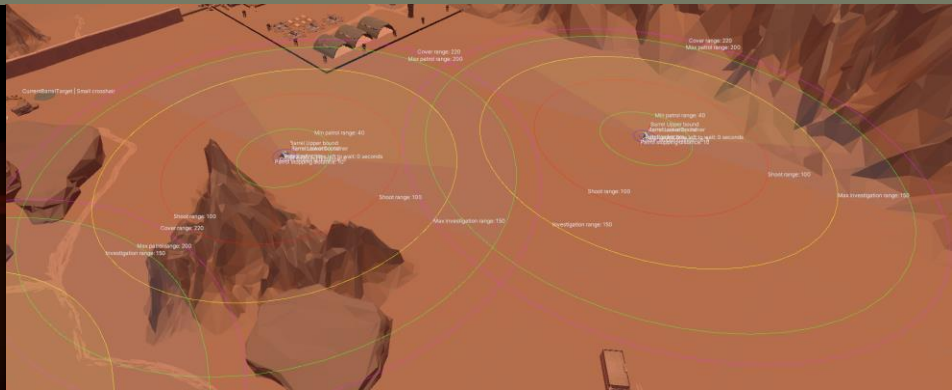
Quality Assurance

Term 3
Glenn Comis –
internship former
lead dev

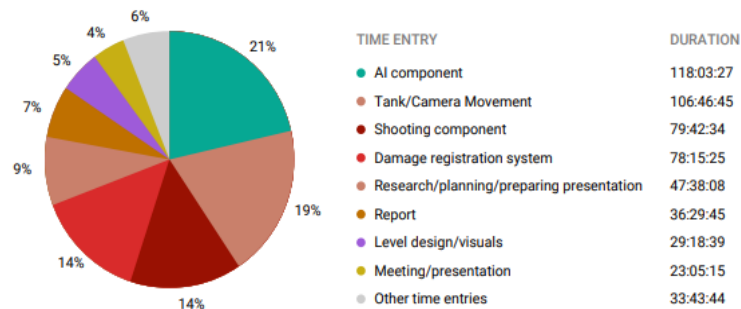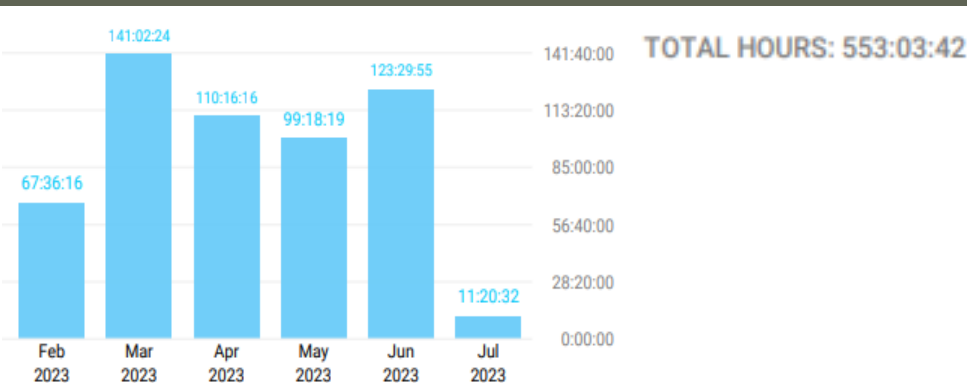## Term 3.5
Yvens Serpa

Term 4
Hans Wichman

Term 4.5
Yvens Serpa

Hour registration & logging

Time spent

TOTAL HOURS: 553:03:42

141:02:24
123:29:55
110:16:16
99:18:19
67:36:16
11:20:32

| 141:40:00 |
| 113:20:00 |
| 85:00:00 |
| 56:40:00 |
| 28:20:00 |
| 0:00:00 |

| Feb 2023 | Mar 2023 | Apr 2023 | May 2023 | Jun 2023 | Jul 2023 |

TIME ENTRY	DURATION
● AI component	118:03:27
● Tank/Camera Movement	106:46:45
● Shooting component	79:42:34
● Damage registration system	78:15:25
● Research/planning/preparing presentation	47:38:08
● Report	36:29:45
● Level design/visuals	29:18:39
● Meeting/presentation	23:05:15
● Other time entries	33:43:44

Logbook

Trello

Week 5 - [20-03 | 24-03]

20-03
Implementing mildots system (range finding)
⏱ 6h 49m

21-03
Implementing mildots system (range finding)
⏱ 6h 19m

Research
⏱ 5m

22-03
Refining motor torque & gear ratio curves
⏱ 1h 40m

Implemented target turret rotation crosshair
⏱ 5h 59m

Working on mildots ranging system

Week 6 - [27-03 | 31-03]

27-03
Camera ADS zooming, improved turret control
⏱ 4h 54m

Started damage registration system
⏱ 1h 45m

Research
⏱ 16m

28-03
Level design
⏱ 1h 56m

Meeting
⏱ 1h 14m

Worked on implementing bullet drop formula

29-03
Research
⏱ 1h 13m

Week 7 - [03-04 | 07-04]

03-04
Working on HUD damage registration system, damage receiving
⏱ 6h 44m

04-04
Damage registration system (simplified approach, HUD)
⏱ 6h 58m

05-04
Level design
⏱ 1h 40m

Damage registration system, tank inspect view UI & camera rotation
⏱ 9h 36m

06-04
Meeting
⏱ 1h 40m

Week 8 [10-04 | 14-04]

10-04
Level design
⏱ 53m

Starting with new input system
⏱ 2h 27m

Working on tank inspection state (rotating around tank, repairing tank)
⏱ 1h 51m

11-04
Refactoring shooting component & movement for new input system
⏱ 5h 56m

12-04
Damage registration system (tank part VFX, on death actions), hostile tank inspection (hostile detection, tweening to position, HUD)
⏱ 5h 46m

Week 9 [17-04 | 21-04]
mechanic (bug with camera jitter in specific positions?). Tank repairing & tank part stats HUD
⏱ 4h 57m

18-04
Fixed jittering bug in tank inspection state. Worked on camera controls for state. Tank inspection world space HUD & screen UI
⏱ 5h 9m

19-04
Updating planning, trello. Making presentation

20-04
Worked on tank VFX, tank inspection
⏱ 3h 20m

Meeting/presentation
⏱ 2h

Possible future plans*

*if/when I have time to further develop this

Node editor behaviour tree

- Improves usability of behaviour tree
- Easier to debug and design

Range-finding system

- Restart a range-finding system
- Dive into mildots mechanics again?

Improve behaviour tree capabilities

- Add more node types
- Add mutual AIBlackboard, so agents can work together

Tank customization

- Buying upgrades
- Tank cosmetics
- Customization menu

Make "real" tracks/better movement system?

- Rebuild movement system
- More research (avoiding Wheel Colliders)

Self Reflection

Find more QA from the industry rather than teachers

Rather than feedback from teachers (which is still great but not as relevant), get feedback from preferably tank game developers.

Lower the bar

I find it hard to balance out my ambitions vs realistic workload. Lowering my expectations for myself might have resulted in better motivation = better product.

Make decisions to scrap mechanics earlier on in development

Improve on realizing when a feature isn't going to work or requires too much time compared to hours in budget.

THANK YOU

Any questions?