

## Minutes for meeting on 12-05-2020

Project: 1-2 Crazy Putting

Date: 12/05/2020

Group number: 4

Group members: René Steeman, Aaron Schapira, Ivan Poliakov, Jean Janssen, Matthijs Kusters, Hoaran Luan

Attendants: René Steeman, Aaron Schapira, Ivan Poliakov, Jean Janssen, Matthijs Kusters, Hoaran Luan

Chair: Aaron Schapira

Secretary: Matthijs Kusters

1. Opening at 12:00
2. Minutes last meetings
  - a. Remarks from group: -
  - b. Remarks from tutor: -
3. State of the project:
  - a. Completed tasks/milestones: Basic bot, improved load/save system connection to physics (setting the loaded values), playable game, connection UI and backend, two Verlet solvers, finished UI system, main menu.
  - b. In progress: Experiments, presentation, code clean-up, shoot UI and reset ball UI (reset ball is non-functional)  
**Remark(s) from tutor:** Add a visual representation using the different solvers. To avoid confusion, change “Our plan” to something like a summary of what we did. Ask examiners if they want the formulas explained.
4. Planning:
  - a. Things to finish before the next meeting: finish project, i.e. code and presentation, and pass phase 2
  - b. In progress before next meeting: -
  - c. Twice a week, once on Saturday at 10:00 and on Tuesday at 10:00. If needed we'll schedule extra meetings 'on-demand'.
  - d. Planning of the complete phase

Topic	Project	March 22 - March 28	March 29 - April 5	April 6 - April 13	April 14 - April 20	April 21 - April 27	May 4 - May 10	May 11 - May 18	Extended description
MAJOR BUILDS / MILESTONES	Basic working game								Working functional engine, basic 2D UI options (text and images), 3D physics, the ability to shoot the ball and score (possibly with UI, but not necessarily), basic course designer (you can add and remove trees)
	Editor build								Fully functional course editor, including adding and removing both trees and sand. It also has the ability to save and load a terrain.
	Basic bot								A basic version of the bot that can already win the game with a simple course
	Improved physics engine								The new physics spheres are implemented and working
	Full playable bot								The final build for this phase is working as intended
PROJECT STRUCTURE AND PHASE 1 FIXES	Improve the graphics engine structure								Make sure that the project structure is clear and flexible, focusing on the graphics engine's structure
	Improve the physics engine structure								Make sure that the project structure is clear and flexible, focusing on the physics engine's structure
	UI 1.0								Create an improved version of the phase 1 UI in the new engine
	Main menu								Redo main menu
	Shooting the ball								Redo shooting the ball UI
WORKING GAME (for humans)	Resisting after hitting water (non-functional, that's for phase 3)								Redo resisting after hitting the water UI
	Editor								Create editor UI (loading and saving options as well as new functions explained)
	Work playable game (for humans)								Have a working game where you can at least shoot the ball and score
	Reading input/output module								How to option to save and load the game information (start location, terrain info, etc)
	Rendering input/output module								
GRAPHICS ENGINE	Create new 2D engine basis								Add the option to add 2D elements to the UI
	Create new 3D engine								Create a new 3D engine using twgl
	Show a triangle								Be able to show a colored triangle in 3D
	Add lighting								Add per pixel lighting and specular lighting
	Camera system in 3D								Add a camera in 3D that can be moved around
	Allow 3D shapes								Have the ability to create models in 3D by code
	Import 3D models								Allow importing 3D objects from Blender
	Basic terrain system (flat ground)								Create a system to deal with terrain rendering (specialized code, separate from other 3D objects)
	Terrain with height								Add height to the terrain
	Multiple textures for the terrain								Allow for multiple textures to be applied to the terrain (grass and sand)
	Waybox								Add a waybox
	Cursor to point on terrain								Convert a mouse click onto coordinates on the terrain
	Spawn objects on clicked location								Add an object with the position being the point that was clicked on the terrain
	Water system								Add water to the game with reflection, refraction effect and "movement"
	Course designer basics (phase 3)								Enable the user to customize the terrain by adding sand and trees
EXPANDED 2D ENGINE WITH BOTTOMS, TEEFFIELDS AND A FILE EXPLORER	Course designer finished, including saving/loading and phase 3								Add a save and load option to the course designer
	Expanded 2D engine with bottoms, teeFFields and a file explorer								Expand 2D engine with bottoms, teeFFields and a file explorer
	UI improvements (ball reset preview, shot direction indicator)								Add 3D UI for resetting the ball and indicating in which direction you're shooting
	Ball reset preview								Show where the ball would end up after resetting it when you hit the water
	Shot direction indicator								Add a vector pointing to the shot direction from ball itself
Additional engine improvements (shadows, improved AI)									
Implement some additional and optional engine improvements									
PHYSICS	Second order Verlet solver								Implement the second order Verlet solver for physics
	Second order Verlet solver (velocity)								Implement a second order Verlet solver, called velocity Verlet solver
	Classical 4th order Runge Kutta solver								Implement the classical 4th order Runge Kutta solver for physics
	Bouncing against trees (phase 3 prep)								Add the physics for bouncing against trees, including 1D detection
	Consider flying bats (phase 3 prep)								Add the physics for flying bats and make sure the rest of the game still works when this is used
Add music - that plays while playing the game and add sound effects to actions like shooting and scoring									
BOT	Basic bot research								Figure out how a bot should work to meet the requirements for phase 2
	Basic version of basic bot								Create a first version of the bot for phase 2 that can already meet the requirements
	Make it more if possible								If you can score in one shot, do so
	Heads means that one shot to win								If you need multiple shots to score than the bot has to be able to do this
	Improve heuristics								Improve heuristics to optimize the bot's behavior and performance
RESEARCH ADVANCED BOT (PHASE 3)	Research advanced bot (phase 3)								Improve the bot further and fix any problems that the bot may have
	Get started with advanced bot (phase 3)								Come up with an improved bot by doing research
	Testing / experiments								Start the implementation of this improved bot
REPORT									
Start with report (mainly structure)									
									Prepare an outline for the report in LaTeX and learn LaTeX if needed
PRESENTATION									
Create the presentation									
Planned duration									
Finished earlier than planned									
Critically behind on schedule									
Possible extension									
Plausible									

5. Any other business:
  - a. From group: Haoran still doesn't respond. He said that he would respond to Katharina's mail.
  - b. From tutor:

For the presentation, the planning for phase 3 doesn't have to be that detailed, because it takes quite some time from the presentation. The presentation should be about **12 minutes**. **Be in the session 10 minutes before the presentation** to prepare everything like microphone, camera, etc. If there are connection problems, immediately send an email about it such that the tutor and examiners are aware.

For the schedule, the schedule and timeslots can be found on the portal. Check the student portal for upcoming deadlines.

The draft of the report is checked (and graded?) by the language centre, so make it seriously.

When Aaron asked how we did compared to other groups Katharina responded with that we doing quite well compared to other groups who were at a similar stage or a bit behind.
6. Chair/Secretary for the next meeting. Chair: René Steeman; Secretary: Jean Janssen.
7. Closing at 12:15