OpenGL Projects

Topics
- Organisation
- Projects
- Planning
- Important Notice
- Assignments

Organisation

Goal

Proof INDIVIDUAL competences as described in Module Description (since there is no theoretical exam) by artefacts: *product, article, presentation, exercises*

Deliverables

The following deliverables are required:
- The product
- Article and presentation, with focus on:
  - Technologies learned and used
  - Problems encountered and their solutions
- Demonstration
- Optional deployment in a store

Delivery deadline of the article is the end of week 14.

Organisation

About the article
- One article (see more information below) per group, with
  - individually written sections on the researched technologies in it
  - plus setting the frame (short documentation of resulting product)
- Make explicit who wrote which part (as appendix to article)
- Write short and precise
- Minimum is 2.000 words, maximum is 3.000 words
- Form / layout:
  - From Abstract onwards in two columns, abstract in bold letters
  - In articles, the different parts are called sections (and not chapters as in long reports)

Organisation

About the article's Section numbering

- Title
- Authors
- Abstract (a few sentences with task/question and results, described short and concise)
- 1 Introduction + brief assignment description
- 2 Overview of technologies used
- 3 Overall architecture (rough design of your solution), this includes the various mappings to OpenGL concepts, mobile devices, game IDE, VR toolkit, whatever applicable.
- 4 Discussion (state of project, open questions)
- 5...X One section per student (about INDIVIDUAL WORK, add your name): what is it about/for, your approach to learn about it, how does it fit in, how to use, main problems encountered, reflection to the learning goals as suitable.
- X+1 Conclusion and Recommendation
- Reference list, referencing in short form, e.g. [1]. See: recommendations from the APPL course

Organisation

About the presentation

- 10 minutes presentation of WHOLE group about same content as article
- Afterwards, you will be assessed individually by lecturer (max 5 minutes)
- Presentations and assessment will take place in the second exam week
- All participants of all project groups are mandatory to be present!

Grading (based on learning goals →module description)

- A student will be assessed **individually**
- The assessment will be based on the list of learning goals.
- The final result will also depend on the student's contribution to the report and product, and the peer assessment.
- Roughly weighting:
  - Final project assignment 75% and weekly exercises 25%
  - Within these 75%: Product 50%, Article 30%, Presentation 20%

Projects

1.Agro: Brightbox AR (contact Marcel Roosen, GTL)
- LED controlled growing of plants
- Climate control
- Look through wall

2.Agro: Orchard AR (contact Marcel Roosen, GTL)
- Annotation of
  - tree type
  - thickness of stem
  - growth curve
  - soil humidity
  - temperature
  - etc…

Projects

3.Maintenance Canon/Océ printer VR (contact Rob Heemels, Océ)

- Use existing CAD files
- Establish 'journey' through machine
- Interact with a virtual tool (Screw driver? Wrench/Schraubenschlüssel?)

4.Virtual Classroom VR (contact Marcus van Emmerik, IPO)

- Multi-presentation in single class room
- Stereo headset
- Ongoing VR concert on stage
- With Google's Cardboard (http://techcrunch.com/2014/06/26/diy-oculus-thrift/)
- How to get 3D content: Former Philips incubator "3D Solutions"

Projects

5.Augmented Fontys Plaza AR (contact Marcus van Emmerik, IPO)

- Augment (class) rooms with schedule / room number …
- Directions for following tour / trajectory
- Finding lectures / students / lecturers (Harry Potter's Marauders map)
- With Google's Cardboard (http://techcrunch.com/2014/06/26/diy-oculus-thrift/)
- How to get 3D content: Former Philips incubator "3D Solutions"

6.A space game: a space shooter in a virtual world (joined problem owner)

- spheric 3D world which can be explored
- 1st person/3rd person camera view
- shoot collectables to gather them. Bring collectables to your base to
- earn points
- multiplayer support to play against your friends over Local Area
- Network (LAN)
- Earn X points to win the game OR survive Y minutes to win the game
- 3D models, music & sound effects created by us

Planning

Wk8: contact your problem owner, see sheet "*Assignments over studentgroups*"
Wk9: make very basic project plan: tasks, small Gantt chart, resources, IDE (only 1 A4)
Wk11: plenary status update (max 3 pptx sheets)
Wk14: deadline article
Wkxx/TBD: plenary presentation and demo of artefacts and individual assessments

Important Notice

- Since this is an OpenGL course you should have at least 20-30% of your effort spent on basic graphics ops (and as a consequence 80-70% on framework)
- Getting 3D data in a quick way is essential; you should not waste too much time here
- Weekly consulting hours are scheduled; it is vital to join them in order to keep focused
- Artefacts may include Cardboard (3 are ordered), Vuzix and Oculus Rift; check our 'store' at W1-1.81
- Artefacts you create should be demonstrable on an Open Dag (simple userguide)

Assignments over studentgroups

Project	Students	Contacts problem owner
C. Agro BrightBox	Christian Neumann, Nils Heyer	j.adema@fontys.nl marcel.roosen@fontys.nl
D. Agro Tree Monitor	Martijn Bonajo, Ennyo Feller	
A. Océ Training the Maintenance Engineer (Unreal)	Borian Brückner, Jonas Verhoelen	rob.heemels@canon-europe.nl willy.dejong@oce.com
G. Space Game	Miguel Gonzalez, Jan Kerkenhoff	jan.jacobs@fontys.nl, joined role with students
E. Fontys Plaza	Max Walter, Ron Gebauer	marcus.vanemmerik@fontys.nl

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Assignments over studentgroups