IG.3504 - 3D, Mixed and Augmented Reality

Group Project Presentation & Start

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Project : 3D Educational/Training Application

The Final Project is about

- **Applying** all the Unity & Game Design **skills** we've covered in the previous lessons
- Working on a **medium size** project, in a **team collaboration** setting
- Producing a 3D application that responds to **real life use cases** in the field of **Education** & **Enterprise Training**

Immersive 3D & Gamification are increasingly used ways to transmit information, making Serious Games & VR/AR a growing field & market

Expected Features

Real World information presented in the app

- The application must allow the user to integrate real world knowledge or skills

User Evaluation System

- The application must be able to evaluate the user's performance and/or behavior depending on business objective

User/Game data Save&Load System

- The user evaluation data and/or progress must be savable and reaccessible

Modular & Expandable Architecture

- The project must allow expansions to be easily added, and porting to other hardware (AR, VR, Mobile, etc) must be accessible

Implementation into a VR or AR format

- Mobile AR should be available to most of you, a few XR headsets will be available during class sessions and using them is encouraged

Project idea examples

Assembly process simulation for factory processes
- Practicing a complex sequence of actions

Worker store/warehouse navigation & task simulation
- correctly navigating through space & reacting correctly to different situations
- taking the right items from the right places at the right time
- safety training

Science phenomena simulations
- simulating nature (epidemy spread, animal population evolution etc)
- physics simulations (ex solar system planet movement, newton's law playground, electric circuits)

3D scene exploration
- can be for places, history scenes etc
- enable to focus on an object & include display text/narrated information
- Museum navigation etc

VR examples

Industrial VR Training application

- https://www.youtube.com/watch?v=XTN4x8hic7I

VR Soft Skills training

- https://www.youtube.com/watch?v=kz53V04LTyg

Factory VR safety training

- https://www.youtube.com/watch?v=5AsksACwdDE

VR Piano teaching application

- https://www.youtube.com/watch?v=giPe_jX9jRY

VR journey inside the human body

- https://www.youtube.com/watch?v=rrl5YZblQF0

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AR examples

Dragging use case with image recognition + tracking for learning physics elements

- https://www.youtube.com/watch?v=Qi3h18wJJiI

Solar System Visualisation

- https://www.youtube.com/watch?v=nXa9FH5VJYc

Kids education material visual augmentation

- https://www.youtube.com/watch?v=e7CaIb4EsDg

3D interactable infographics

- https://www.youtube.com/watch?v=OE66gtiF8QQ

Oculus Quest Passthrough AR Experiences

- https://www.youtube.com/watch?v=0v7JDI-MpD0
- https://www.youtube.com/watch?v=rSzhymbLNS0
- https://www.youtube.com/watch?v=JS1zeQ5iqrs

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Group Formation

Groups will be **6 to 7 people**

- Allowing you to fit in one class table per groupe
- Good balance for collaboration, task splitting & specialization

Try to assemble following **affinities** :

- **Hardware type** you have/are interested in (VR ready PC for VR dev, MacBook for IOS AR, etc)
- **Themes/Project types** you're interested in (education apps for kids, training simulations for enterprise, etc)
- **Complementary skill sets** (ex code architecture + 3D modeling)

Avoid this plz

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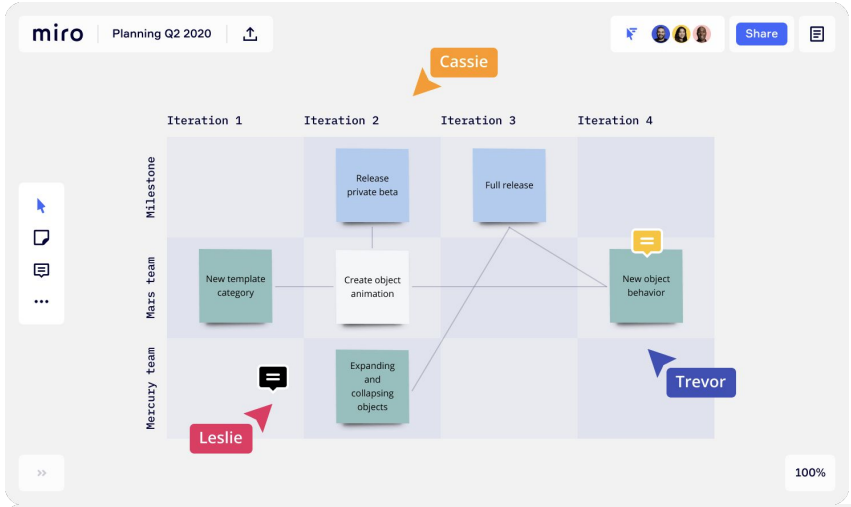
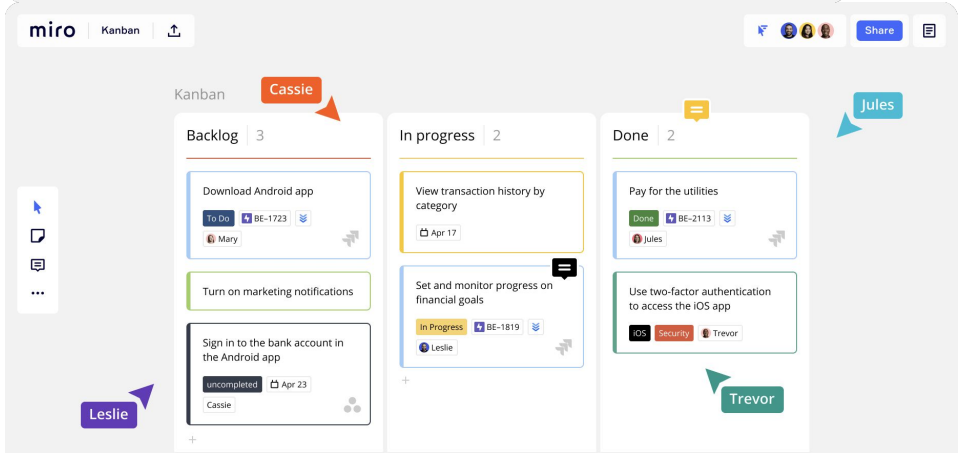
Collaboration tools

Miro : Highly recommended for project collaboration

- Mood boards
- Kanban boards
- Code architecture diagrams
- Visual Design Iteration
- Easy to share

For Unity collaboration the most simple & recommended option is **Git** with Private Github Repo





Development Process

Defining the project theme & objective
- Targeted use case & field

Building a first MVP
- A functional game loop with simple start menu, game data & end score/info
- A functional part of the end experience

Building a GDD (Game Design Document)
- Include gamification aspects, Source material, Dev Ressources, etc

Having separate teammate do R&D for specialised features
- ex : AR integration, Save system, etc

Sharing Project progress each week
- Mini class presentation & feedback

Implementing project elements & systems in AR or VR
- We will have lessons on those aspects during this 2nd midterm

Code optimisation, debugging & final build

Team Building & First Brainstorm