ITD Diploma in Immersive Media Year 2 (2021/22) Semester 2.2	Version **1**
	Week **2 - 6**
Assignment Project 1 (20%) **Design & Development for 'The COVID-19 AR Experience'**	

OVERVIEW

Goal

To create an Augmented Reality Mobile Application to provide multiple interaction points for engaging, facilitating or educating users with scenarios related to the COVID-19 situation <u>in Singapore</u>.

Form a team of 2.

Objectives

The Augmented Reality Application should be able to fulfill <u>at least</u> one of the conditions:

- To provide an AR enhancement to informative content provided by existing educational messages (ie. Printed brochures / posters / signage / timeline)
- To propose a re-design to existing COVID-19 processes (ie. Mall / restaurants' entrances / school canteen) to facilitate or step-up safe-distancing measures through the use of AR technology
- To introduce gamification features / create a simple game (ie. Scan to earn rewards, MCQs) by tapping on AR technology, related to COVID-19.

Example Scenarios

Here are some scenarios to help you get started. How would you plan or re-design these situations by tapping on AR:

1. SafeEntry check-in via QR code is a relatively fast process that we have gotten used to after months of adoption. However, there are still long queues at mall entrances on weekends.

2. Educational exhibition / roadshow / booth stationed at malls / schools / bus interchanges / MRT stations / places of interest / community centre. They may be manned or unmanned.

3. Numerous diners are challenging the 2-in-a-group rule by showing up in large groups (more than 2). Despite being assigned separate tables, they do not follow the no-cross-table mingling rule, much to the displeasure of F&B operators.

4. As more and more COVID-related professions pop up (e.g. Safe Distancing Ambassador, HPB Swabber, etc.), there starts to be a lack in training resources to educate newcomers to the job as the volume of hires is becoming overwhelming.

5. Young children or the elderly probably requires more reminders (ie. washing hands with soap, steps to scan SafeEntry) to keep themselves safe during this COVID-19 period. They have access to educational materials but not all may be impactful enough for the reminders to stick around.

You are required to fulfil the following requirements:

Create a **mobile AR app on Unity** based on your proposed concept. Other than the flagship AR feature(s), you may want to create **at least ONE** other supplementary feature like Mini-Games,Quizzes or offer sharing via social media. All the features in your app **should work** well enough for **demo** purposes, meaning the final submission does NOT need to be a finished product, but MUST be at least a proof of concept to show that your ideas can be implemented.

GUIDELINES

AR App Prototype

Your end product will be assessed based on the following criteria:
1. Technical production, smoothness of flow, thorough testing to ensure no bugs
2. Design and Usage of physical markers, choice of AR sensing
3. Visual, textual and audio cues used. Feedback mechanism.
4. Engagement value of prototype

You may want to ask yourself the following questions as you go along:
- Does the content being presented need an AR application?
  - If not, how can I supplement it with more information or make it easier to digest with AR?
- Consideration for physical space, physical lighting for scanning AR markers? How can I make the experience seamless for my audience and the various devices
- Practical design considerations – whether prototype suits environment, physical space, group size, amount of time to learn and use the application
- Interactivity of application, am I using suitable typography, menu design, visual hints on using the AR app
- Balance of 2D and 3D elements
- For games, think about fulfilment of task. Visual and audio cues/indicators placing and timing
- Social sharing options or whether AR activities can involve more than 1 person (does not have to be in a multiplayer context)
- Rewards consideration for games. What kind of achievement rewards
- Load & waiting time. Visual and textual hints when there is no scanning or waiting for something to happen.
- Have I tested enough? User physical height? Is it at only certain angles my prototype works?
- How AR is used to enhance the experience? For 1 person? For a group setting?
- If there's audio, should you cue users to plug in headphones? Don't forget it's an open setting environment.
- Screen size and device limitation.
- Performance of application. Make sure devices do not overheat running your app.
- You may consider using APIs to enhance the experience.
- You may consider using databases or file system to allow storage of information and easy updating of new content materials

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ASSIGNMENT WEIGHTAGE

ITEMS	WEIGHTAGE
Scripting & Project Management *Appropriate coding practises? Usage of comments? Files are organised properly? Usage of Prefabs when appropriate*	**30%**
AR Usage *How many forms of AR tracking does the application use? Is the application able to combine multiple forms of tracking? Interactivity between player and the AR elements?*	**30%**
UI/UX *Are the designs of the different menus cohesive with each other and the rest of the game? Are there custom assets? Are UI elements used and placed purposefully?*	**10%**
Game Juice *Are audio effects implemented well in the game? What feedback mechanisms are in the game? How does the game react to player action?*	**10%**
Collaboration *How much contribution did each member put in? Were the updates on Git properly commented and meaningful?*	**10%**
Demo Video + Presentation Slides	**10%**
GRAND TOTAL	**100%**

MARKING SCHEME

To obtain this grade...	Minimally, you need to implement...
Pass	- Usage of either: - Image Tracking with MULTIPLE Image Targets ***OR*** - Ground/Air Targets - User can toggle AR Camera - AR objects should disappear when camera is toggled off. - Appropriate usage of user inputs - Appropriate usage of models - Models are textured - Interactions with AR objects through UI elements. - UI elements scale and adjust to different screens. - User can start and exit the application with no bugs - Code is properly commented
Merit Grade	You must fulfil the criteria of obtaining a passing grade, plus: - Usage of ONE additional form of AR tracking. - This additional form of tracking can be in a separate scene. - Nicely designed visual indicators - Balanced and appropriate usage of typography - Good usage of 3D models in relation to virtual world - Interactions with AR objects through raycasting. **Plus Points** for proper code structure & documentation **Plus Points** for custom visual/aural assets
Excellent Grade	You must fulfil the criteria of obtaining a Merit grade, plus: - Usage of additional form(s) of AR tracking in ONE scene. - Well planned usage of sound effects - Well designed visual indictors and GUI - Multiplatform support (iOS & Android) **Extra Functionality:** - Add in at least one extra functionality, that will be good for the application to have and that has not appeared in this brief **Check with your tutor whether your extra feature can be considered first.** **Application Design:** - Add in design features that aids the user to navigate the application easier

DELIVERABLES

1. **Unity Project** that includes all asset files (e.g scenes, scripts, materials, textures,packages, models, videos, etc)
   - Ensure all files are organised and have a proper file name
2. 1 compiled **Unity Project** (.apk). If you need an android device to be loaned, contact yourtutor ASAP. First come, first serve.
3. 1 **video demo** compilation of the whole AR experience.
   - Would be good to narrate what is happening in the video.
4. 1 set of **Read Me** & walkthrough
   - Readme should include detailed instructions (key controls, "game cheats/hacks", answer key, etc) on how to use and run your application.
   - Indicate the platforms/hardware required to run your application
   - Indicate the limitations or bugs in the application
   - Indicate **references and credits to the models/textures/materials** used
   - If there are any games/application that requires solving, please write out yoursolutions.
5. **Presentation Slides** (5 to 10 slides) that summarises your project for pitching purposes.
   - Screenshots and/or video trailer
   - Description of major features
   - Unique Selling Point
   - Anything else that will help 'sell' your ideas

FINAL SUBMISSION		
Item(s)	**Naming Convention**	**Submission Channel**
1	ITD_Assg1 _ProjectName.zip	Via **Google Classroom (Only the team leader need to submit)**

The zip file should contain the following deliverables:

Item(s)	Naming Convention	Description
1	ITD_Assg1_ProjectName_UnityProject	The Unity Project folder holding all assets
2	ITD_Assg1_ProjectName.apk	The compiled build from Unity.
3	ITD_Assg1_ProjectName_Video.mp4 (other video formats is fine, check with your tutors)	The video demo of your application. (Phone/laptop demo is fine)
4	ITD_Assg1_ProjectName _Walkthrough.pdf	The walkthrough of the application.
5	ITD_Assg1_ProjectName_Slides.pptx	The presentation slides for the project

DUE DATES

	Week 3
Ideation	Message your tutor on Teams individually to discuss the viability of your idea for the assignment.
	Week 5
Checkpoint	Book a consultation slot on Calendly and meet with your tutor for feedback.
Final Submission	**Week 6, One day before class, 2359hrs**

LATE SUBMISSION
Late submission will be penalised (10% of the marks for each day late after 12 noon). Submission will not be accepted after 5 days (including weekends and public holidays) from the date of submission.

PLAGIARISM AND COPYRIGHT ISSUES
Plagiarism means, "*copying any part of a source, and then submitting it, claiming that it is your own work."*

Please ensure that all the works submitted by you are not copied from other sources. Any attempt to plagiarize will be dealt with severely, and it may result in your failing the module.

If you have made any references to certain materials, make sure you cite the sources by acknowledging and providing the information necessary to find the source (e.g. Title and author of book, Internet links, etc)