



Legal Issues

AR Portal for GOSH DRIVE

Team 36

Author

Author Email

Yin Long Ho

yin.ho.17@ucl.ac.uk

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Department of Computer Science
University College London

1. Terms and Conditions of Software Delivery Document

Deliverable/Feature	Priority	Contributors	Expected finish date
Generate an AR portal which the user can walk in and explore	Must	Yin Long Ho, Chirag Hedge, Haonan Zhang	21 st Dec, 2018
Play AR 360-degree video	Must	Yin Long Ho	4 th Jan, 2019
A web app for users to create new rooms and add/edit/remove objects from them	Must	Chirag Hedge	4 th Jan, 2019
Web app user authentication and storage system	Must	Chirag Hedge	4 th Jan, 2019
Download rooms from server and generate them in the AR mobile app	Must	Yin Long Ho	4 th Jan, 2019
User interactions with virtual objects (e.g. hold and move an object)	Must	Yin Long Ho	8 th Feb, 2019
3D interface instead of 2D for editing room in web app	Should	Chirag Hedge, Yin Long Ho	15 th Feb, 2019
Allow users to provide their own model (.fbx) files	Should	Yin Long Ho, Chirag Hedge	15 th Feb, 2019
Enhance security to protect user's privacy (e.g. extra passcode requirement)	Should	Haonan Zhang, Yin Long Ho, Chirag Hedge	22 nd Feb, 2019
Website front-end development	Should	Haonan Zhang	1 st Mar, 2019
Track and analyse application usage	Could	Yet to be decided	-
Date of code review			15 th Mar, 2019
Date of handover			22 nd Mar, 2019

2. Liability, IP and Privacy Document

This section will discuss any potential liability of our project and considerations on how to protect our work.

Since our project involves processing user data, one of our liability is to maintain data confidentiality under the General Data Protection Regulation (GDPR). We should not collect more personal data than necessary, for instance, we might not need to store user's IP address. Personal data should be stored securely and deleted upon users' request. At the current stage, our application intends to store user's authentication information (account name and password) and 3D model files that they uploaded. We should consider deleting all unnecessary model files when users delete the respective portal world. We can also add an option for users to delete their account permanently and remove all information of the user on the server.

As for security, we should never store user passwords as plaintext, but only hashes of passwords generated from a proper secure hash algorithm. 3D model files can potentially contain sensitive information, such as a patient's MRI brain scan, thus, should be encrypted appropriately. But note that 3D model files are relatively large in file size, which causes encryption and decryption to be slow. We might consider to only provide file encryption to users in need to keep the server stable and responsive. Furthermore, the server will pack 3D models into Unity's AssetBundles before they are downloaded by the mobile application. We should not alter the original models in the process in order to protect data integrity. Additionally, we could use checksum to ensure no content is modified by adversaries.

In compliance with the Disability Discrimination Act, we have the obligations to allow disabled people to use our application easily. We mainly focus on designing a GUI that is clear to visually impaired users. We chose a colour palette that can be viewed clearly by users with colour vision deficiency. Apart from using a clear text font, we also consider adding options to change the GUI text size (small, regular and large) to assist users in reading.

As mentioned, our application allows users to upload their own 3D model files. Those models can be potentially viewed by anyone if the owner publicly shares the map code of the portal world. There exists a threat which someone can share a portal world with inappropriate or offensive 3D models. Under the Malicious Communications Act, we should attempt to stop someone from sending any form of communication that is indecent, grossly offensive or threatening. This issue is particularly important since children are one of our target user groups. Unfortunately, there exists no simple way to auto-verify whether a 3D model is appropriate or not, and human verification process would be time-consuming. We suggest employing a simple report system such that users can report inappropriate portal world contents. Administrators can then make further judgments on whether to remove the content and/or ban the portal world creator.

Our works fall into the category of literary, which is under the protection of the Copyright, Designs and Patents Act. Due to the agreement we signed at the beginning of the project, the intellectual property of the project belongs to UCL.

In the development process, we have used third-party tools and resources from various sites. We have the obligation to obey their terms and conditions. Note that we prioritize free tools and resources for the purpose of this project – prototyping and demonstrating a proof of concept. But for other usages of the application, such as commercial usage, we might violate some agreements. For instance, we are no longer permitted to use the free version of Unity (Unity Personal) if the company makes more than \$100,000 in annual gross revenues or has raised funds in excess of \$100,000 according to Unity's EULA Agreement. Also, for testing purpose, we downloaded 3D models from the online site TurboSquid, where some models are restricted to editorial uses. However, users should be able to provide their own models in later versions of our application. We should state in our terms and conditions that users are responsible for making sure that they have the right to use a model. And their actions are not affiliated with or endorsed by us.

When choosing an appropriate software license, we should keep in mind that the final product of this project is a proof of concept. Additional modification and improvement should be made before deploying into a production environment. Common licenses that allow source code modification includes GNU (such as GNU GPLv3), Apache 2.0 and MIT. Among these options, MIT has the least amount of restrictions and provides the greatest license compatibility. GNU and Apache 2.0 require the source code changes to be documented. Furthermore, GNU requires the source code to be publicly disclosed. At the early stage of developing a proof of concept application, features and code often change frequently. Documenting every modification is less accurate, less meaningful and extra time-consuming. As such, MIT license is a good choice and the source code can remain private to the company. If the company wish to switch license in the future, they are also free to sublicense the code under another license. In contrast, GNU does not have such flexibility as modifications must be released under the same license.

All suggestions above follow the idea of allowing more users to use our application without sacrificing their privacy and safety. Discussion for future development is also considered as handover will happen at the end of this semester. The legal requirements should keep evolving as development continues.