

Project Proposal

For

ARt

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Cycle: 1

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Project Proposal

This report documents the initial definition of the project. It includes an abstract and project overview. It also includes a summary of issues related to the project and to the team.

Project

Project Name: ARt

Abstract

Our project is called “ARt” and is a virtual gallery specially designed for Drexel University. The app uses augmented reality and 3D objects to present Art students’ work and other projects. The app is designed for two different kinds of users. It allows students to present their projects as part of a digital portfolio, and also gives other users a chance to explore a gallery and even buy or review students’ work. The app will also have the option to scan QR codes that will be provided in key spots on campus. Users will be able to scan them and take a look at projects uploaded by students, that are related to that specific place.

Our application will be used by people attending or visiting Drexel – as anyone can scan the QR codes that will be provided at various locations on campus. Students will be interested in self-promoting their work and create a different kind of virtual portfolio. The app will also allow users to buy and review the products presented, making the target audience even larger. By using augmentative reality technology, we are trying to make art more accessible to people and make it more relevant to those who have little interest in the field.

“ARt” is a complex project that requires a lot of time and effort in order to be successful. On one hand our team will have to learn new technologies and understand how to create AR and develop iOS. On the other hand, being an application strongly related to art, we need to be very careful with the overall aesthetics of the user interface. The app has both hard and soft benefits. Among the hard benefits, we can consider making the purchasing process easier, helping students sell their work and other users to have easy access to the works of art, thus creating revenues. When it comes to the soft benefits, the app helps users visit a digital gallery, making it more interesting and interactive for them to look at art.

Project Deliverables

1. Database

- 1.1 Database will be accessible to server;
- 1.2 Database will be store and restore artwork;

2. API

- 2.1 Will communicate using valid JSON data;
- 2.2 Will allow the user to upload an image,
- 2.3 Will allow the user to get an image based on some ID,
- 2.4 Will get details about an image
- 2.5 Will allow users to login,
- 2.6 The system will allow anyone to report registered users for inappropriate or illegal content;
- 2.7 Users will be rate-limited to a reasonable number of requests in a given time period (e.g. 60 seconds) to prevent abuse;
- 2.8 The system will be able to create, store, and delete accounts in a registry of users who have signed up;
- 2.9 The system will require that users log in before uploading content and before interacting with other users through social features;
- 2.10 Will generate QR codes for AR work

3. Frontend

- 3.1 Will have Image uploading interface;
- 3.2 Will be accessible to mobile users;
- 3.3 Will provide communication with the API;
- 3.4 Will give the options to the user to share our service with others;
- 3.5 Will provide user information about the project;
- 3.6 Will provide links to app stores and places on the internet where our service is;

- 3.7 The system will allow users to create public profiles with basic information about themselves, which will display when viewing artwork uploaded or when interacting with the system with social features;
- 3.8 The system will allow users to log in and log out
- 3.9 The system will allow users to upload artworks as an image file
- 3.10 The system will allow users to give metadata to uploaded images
- 3.11 The system will print QR codes that point to a specific art piece
- 3.12 The system will allow users to browse art uploaded to the website
- 3.13 The system will allow users to manage their account
- 3.14 The system will allow users to remove their art pieces
- 3.15 The system will allow users to leave comments on art pieces

4. Security

- 4.1 The system will securely manage passwords, using proper and recommended cryptographic hashing and salting methods when storing password data;
- 4.2 The system will allow users to log in and receive a session ID, enabling them to remain logged in without entering their passwords multiple times on the same device;
- 4.3 The system will verify to ensure that a user has a Drexel University email address before they can create an account;

5. iOS App

- 5.1 The system will allow the user to log in and log out via the backend API
- 5.2 The system will open a camera interface with a live view of the device's back camera
- 5.3 The system will look for and scan specially designed QR codes
- 5.4 The system will continue on if the QR code is valid
- 5.5 The system will give an error if the QR code is not valid
- 5.6 The system will send a request to the server with information from QR code
- 5.7 The system will retrieve a 3D object file containing the request art piece
- 5.8 The system will display the 3D object using ARKit
- 5.9 The system will allow users to leave comments on art pieces
- 5.10 The system will allow users to like/dislike art pieces
- 5.11 The system will allow users to report inappropriate art pieces

Resources

- Money for the hosting payment;
- Service:
 - o **Web:** Heroku or AWS
 - o **Database:** MLab - 500 MB of initial free hosting and an all-around good service for hosting MongoDB databases;

Expertise

The team's expertise and determination will allow us to successfully develop the project.

The skills that the team currently possesses are: Swift (working knowledge), Python 3, Flask, HTML5/CSS3, JavaScript, C/C++, Cryptography, basic level of Node.js, general backend and frontend programming experience, databases, MongoDB, React Js, server-side programming, web APIs, client-server interaction;

Among the skills that the team needs to learn are: MongoDB's GridFS, Node.js HTTP modules, ARKit, Swift standard library, Django, iOS Networking;

Team

Team Members and Roles

Figure 1, below, identifies all the team members and the initial role assigned to each person.

Name	Role
<i>Matthew Kleiner</i>	Frontend/Backend Developer
<i>Phoenix Kline-Sanfosso</i>	Backend Developer
<i>Gurleen Singh</i>	iOS Developer
<i>Anca Scarlat</i>	Project Manager; Developer

Figure 1 - Team Members and Roles

Timeline

The figure below shows the initially identified set of activities for this cycle.

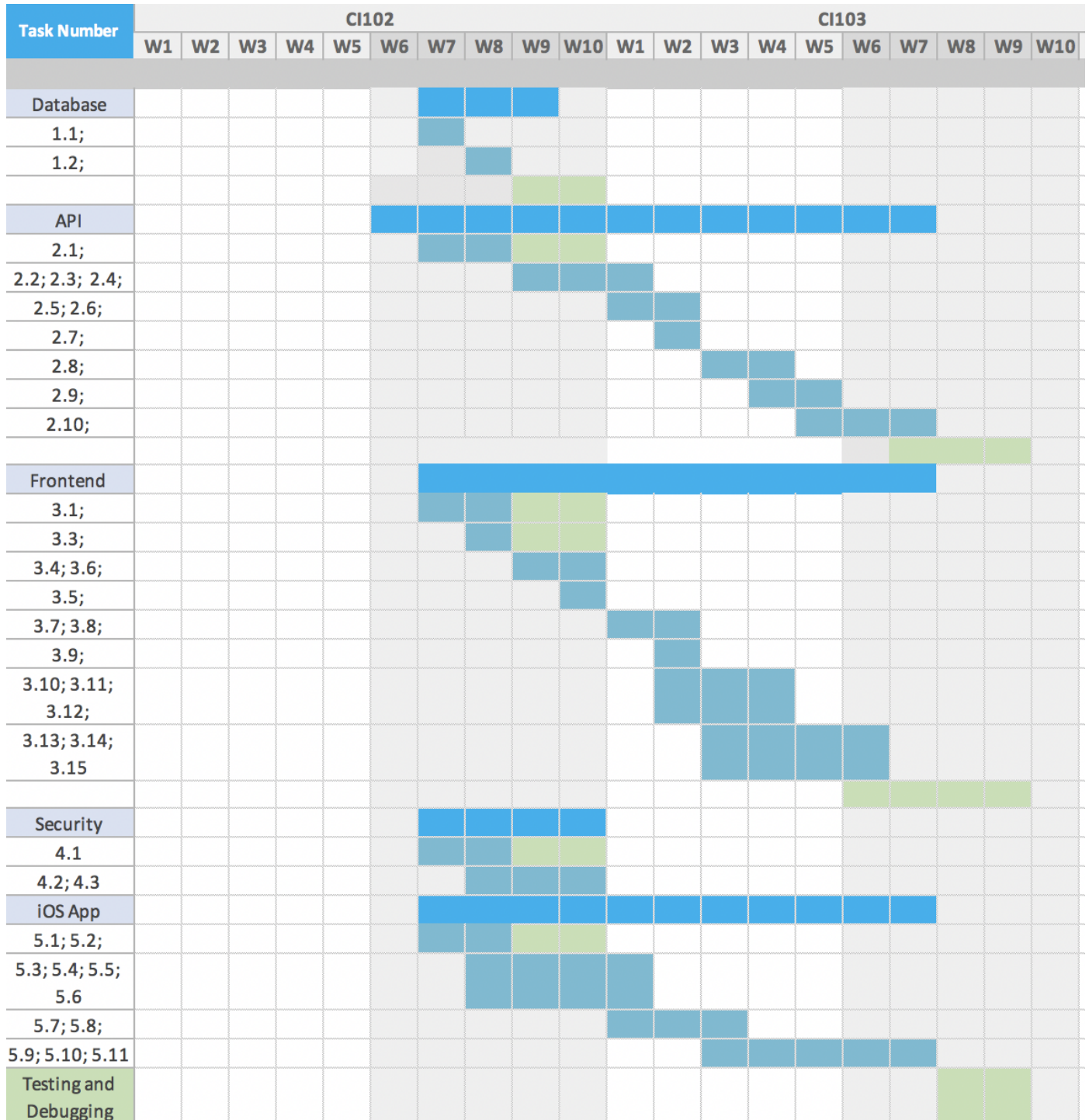


Figure 2 – Project Timeline