Project: Red Pony Plan

Introduction

Project Scope

Project: Red Pony is a social file-sharing tool that enforces strict location and other access restrictions. Unlike other social networks and file-sharing services, Red Pony gives a physical aspect to files uploaded to a digital world. It allows users to upload and download files based on their current location. Secondary restrictions such as user identity, time constraints, and quantity limitations can also be enforced.

Inputs

To use the service, the user must provide various inputs:

- In order to access this application:
  - Create an account providing a username, email, and a password
  - Use a third party account to log in
- In order to use this application:
  - Users must give the app permission to use location services
  - To upload files users must also give the app permission to access files and photos stored on the phone.
  - Users can optionally give permission to use the camera.
  - Users can optionally allow push notifications

Application Functionalities

In order for the service and application to function properly, the software will be in charge of these core functionalities:

- Location Services
  - Constantly track user location
  - Keep track of file locations
- Account Management
  - Manage database of all users and their information
- File Sharing
  - Allow the user to upload files
  - Manage database of uploaded files
  - Allow the user to download files
- User Interface
  - Provide an interface for account creation/login
  - Provide an interface for file sharing

        - Uploading a new file
        - Setting restrictions
        - Downloading available files
    - View available files on a map
    - Provide an interface for user settings

Major Software Functions

- *File and Account Management*
    - MongoDB: User accounts and uploaded files will be stored and managed with MongoDB, a noSQL cloud-hosted database as a service tool.
- *Hosting*
    - Google Cloud: Both the database and mobile application will be hosted on Google Cloud.
- *User Interface*
    - Ionic: A free, open-source, and cross-platform framework for developing mobile applications with web technologies like AngularJS, Javascript, Typescript, and HTML5.
- *Location Services*
    - Ionic-Native Geolocation: Ionic comes with a plugin for geolocation that provides latitude, longitude, altitude (and its accuracy), heading, and speed.

Performance/Behavior Issues

Performance will be directly related to internet connection.
Android Users' devices must be updated to an API level equal to or higher than 21 while iOS device users should have a device supporting a version of iOS 9.3 or higher.

Management and Technical Constraints

Deadlines

Fall '17:

- Date - 10/2/2017
    - Project Plan
- Date - 10/9/2017
    - Flowchart
- Date - 10/16/2017
    - UML Diagram
- Date - 11/13/2017
    - Use Cases
- Date - 11/13/2017

    - Test Plan
- Date - 11/27/2017
    - User Interface Layout
- Date - 12/4/2017
    - User Manual
- Date - 12/4/2017
    - Presentation and Application Tutorial

Spring ‘18:

- Date - 2/19/2018
    - Geolocation services
- Date - 2/26/2018
    - File Sharing
- Date - 3/5/2018
    - User Accounts
- Date - 3/19/2018
    - Finished Service
- Date - 4/16/2018
    - User Interface
- Date - 4/30/2018
    - Finished application
- Date - 5/7/2018
    - Presentation

The design and implementation will be completed according to the prototyping model in *Fig 1*.

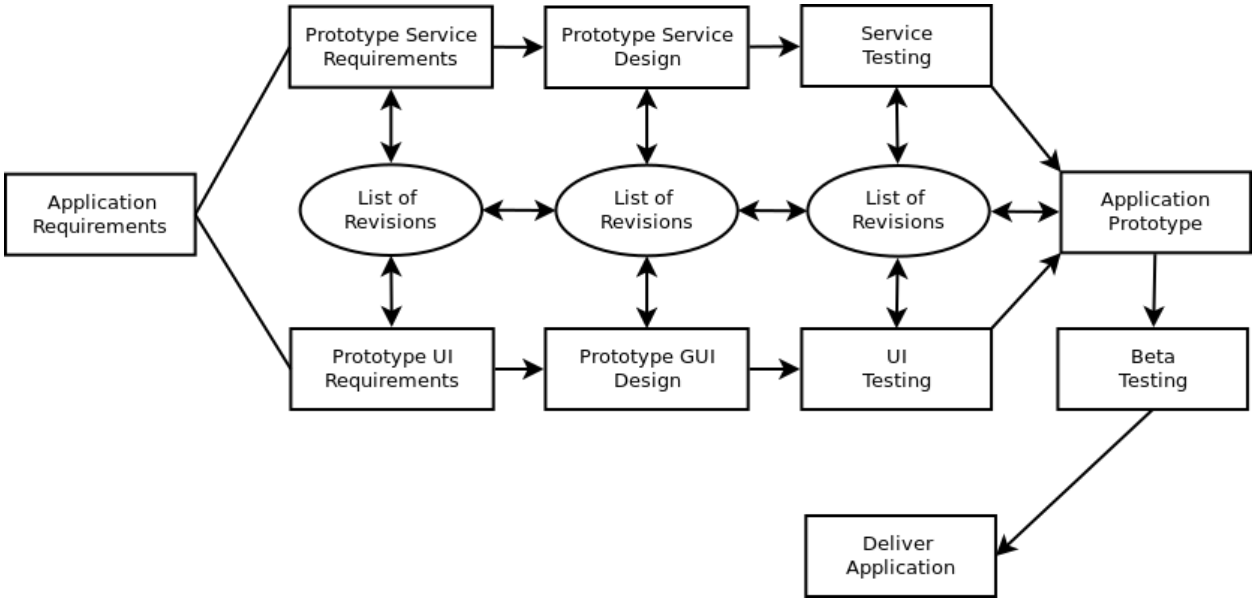


Fig 1: prototype model

Project Estimates

Project Resources

The team in charge of creating this application is comprised of 5 students in the software engineering field. Each student will be required to perform multiple jobs that include the following.

Required Staff

- UI Designer
- Security and Privacy Assurers
- Programmer/Coder
- Graphic Designer
- Quality Assurance Management
- Software Testing
- System Designer
- Documenter
- Database Administrator

Risk Management

Project Risks

- Late software delivery
- Inexperience with development tools
- Technology will not meet expectations

- Deviation from software engineering standards
- Poor comments in code

Risk Table

Risks	**Probability**	**Impact**
Late software delivery	70%	1
Inexperience with development tools	70%	2
Technology will not meet expectations	20%	2
Deviation from software engineering standards	15%	3
Poor comments in code	10%	4

Overview of Risk Mitigation, Monitoring, and Management (RMMM)

Risk will be mitigated through thorough testing and documentation. If any risk is found, a strong method will be determined to find the best course of action to take if the risk occurs.The Requirements Specification and the System Specification will be analyzed to find any risk that may happen as a cause of this software. We will create predetermined paths and directions to follow when attempting to to manage a risk.

Project Schedule

Project Task Set

Process Model

The design and implementation will be completed according the prototyping model in *Fig 1.*

Framework Activities

- Planning and Design
- Risk Analysis
- Programming
- Testing
- Client Feedback

Task Set

- Service construction
- User Interface Construction
- Testing
- User manual construction
- Application construction

List of Deliverables (In order of Importance from the Top)

Documentation

Project Plan
Flowchart and UML Diagram
Use Cases
Test Plan
User manual and User Interface Layout

Code

Service
User Interface
Online account profiles
Application

Functional Decomposition

Service

- Account creation
- File uploading
- File downloading
- File querying
- User querying

User interface

- Account creation interface
- File query interface
- Map interface

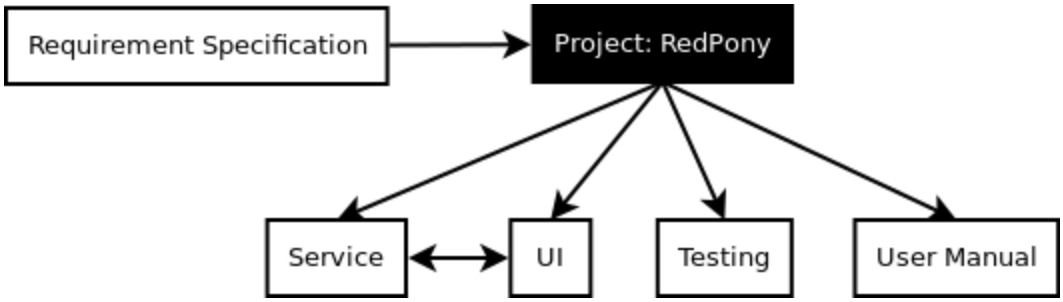
Testing Task Breakdown

- Test file querying
- Test account creation
- UI user-friendliness
- UI aesthetic (smoothness of transitions, appealing design, etc.)

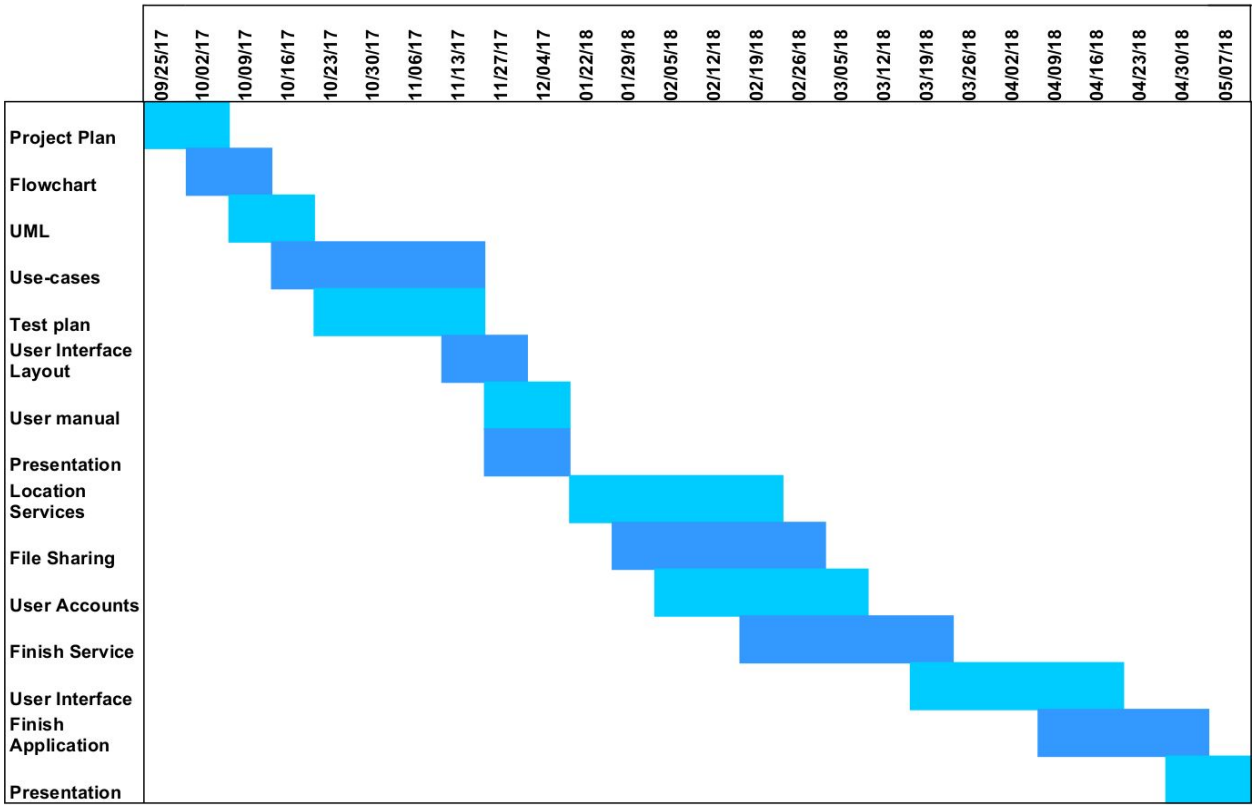
User Manual Task Breakdown

- Interface manual construction
- OS requirements construction
- FAQ construction
- Manual construction

Task Network



Timeline Chart (Estimate)



Team Structure

The Project: Red Pony team will use the Egoless Democratic Model for team structuring:

- The Egoless Democratic Model states that every goal is set by a consensus between team members. Every member's input will be taken to account for every major decision and group leadership will rotate depending on the specific skill set of individual group members.

Role Definitions

Daniel Olivera

Software Tester:

Runs and validates the test cases to ensure functionality.

Quality Assurance Management:

Confirms the application works as described and is functionally complete.

Programmer/Coder:

Helps in the development of the application through coding

Documentation:

Updates documentation throughout the life of the project.

Daniel Kim

User Interface Designer:

Oversees the creation of the UI. In charge of design and implementation.

Programmer/Coder:

Helps in the development of the application through coding.

Documentation:

Updates documentation throughout the life of the project.

Jared Coleman

System Designer:

Creates the backend of the platform on which the service will run. Ensures all parts of the service work as a single system.

Programmer/Coder:

Helps in the development of the application through coding

Documentation:

Updates documentation throughout the life of the project.

Mario Lopez

Database Management:

Creates and Maintains the database used to store user's files and makes sure it integrates seamlessly with the application.

Programmer/Coder:

Helps in the development of the application through coding

Documentation:

Updates documentation throughout the life of the project.

Viet Le

Security and Privacy Administrator:

Handles all the security and privacy concerns with the service.

Ensures encryption protocols are up to industry standards.

Programmer/Coder:

Helps in the development of the application through coding

Documentation:

Updates documentation throughout the life of the project.

Management Reporting and Communication

Mechanisms for Progress Reporting

Progress reporting will be done through the use of GitHub and its notification system along with the use of Slack and its tools.

Mechanisms for Intra/Inter Team Communication

Team members will meet up twice a week following class lectures to ask any questions and discuss the project amongst each other. Extra meetings will be conducted depending on the importance of the task the team is currently handling at the moment. Outside of face-to-face meetings, team members will use the Slack software tool to communicate to each other about anything pertaining to the project.

Tracking and Control Mechanisms

Quality Assurance and Control

Team members will continuously monitor each other's work to ensure that the product does not deviate far from the original design specifications. Any deviations that occur and are spotted will be brought to the attention of the involved team members. Additionally, testing will be done throughout the development stage to recognize any defects in the design or implementation.

Change Management and Control

Management will be controlled through the use of GitHub and its version control management system. Each branch to be merged into the origin repository will have to be confirmed by multiple or all teammates depending on the importance of the item and its impact on the software. Team members will fetch and merge in the changes from another user's repository to thoroughly test the implementation before the addition into the server's main branch. The goal is to minimize unnecessary backtracking so that our product can be developed in a timely manner.