Plan for dissertation

**Overall**

Produce an app, API and database. Which will allow people to upload images of their plant, the app will then identify the plant.

The program will strip the meta-data once the plant has been identified and produce chats and data, relevant to that specific plant (e.g, Typcially found in X area and other specific traits) (This could also be accompanied by other pcitures of the plant, which have previously been uploaded to the system.

As the system is used, it will gain more and more information, enabling the plant information to become even more specific, (e.g, Orignally found here X, but can be grown in X and X (information gained by people uploading their images)

Connor suggested this could use some form of Convolutional neural network

Idea 2 (After speaking to craig) (Try to get ismini or Shirely, she’ll fight for me if needed)

Make it look good, make it complete.

Basic app:

The user uploads a photo via a mobile app and if they know what that plant is, they label it. The system then strips the meta data (Date, X, Y) and provides a map of the world with locations of that plant. The system will then allow the user to search for more plants and such, displaying other information as requested.

Stretch goals:

* Have AI recognise the image, make sure it is some type of plant.
* Have AI recognise the actual plant
* Use Met office AI to add weather to the stored meta data taken from the image, (so we know the type of temperature the plant can grow/flower at)
* AI to produce plant suggestions to grow at the users location, depending on what has been confirmed to grow there

Helpful:

<https://www.ibm.com/watson/services/visual-recognition/demo/#demo> (Watson Visual Recognition)

<https://kotlinlang.org/> (Kotlin Statically typed programming language for modern multiplatform applications)

<https://firebase.google.com/> (Amazon firebase)

<https://cloud.google.com/vision/> (Google AI vision recognition)

Liam suggests (<https://ionicframework.com/docs/v1/guide/preface.html>) (Ionic language for android)

Currently, plant identification is carried out via a lengthy search within textbooks or a mobile app, these current resources don’t pair this information on what plants grow in a user’s chosen area, this project enables users to find what plants grow in a specific location.

The project will develop an android mobile app which provides plant identification via a user photo and a search facility to display plants, which are found in a chosen location.

The project is intended to be used by android users with a general horticultural interest.

The method of approach will involve development of a database and mobile android app.

The database will be developed using Google Firebase as the database, due to the scalability and mobile integration.

The android app will be developed with Kotlin using Android Studio.

The system will use the Google Vision API to identify the users photo of each plant and provide a few recommendations of the plants identity, the system will use the GPS metadata within the photo to log the plant location, this will then be used in future searches to show plants found in a specific location.

The project will utilise the agile methodology for development.

Requirements: android mobile to use for testing and development, use of Google Firebase and Google Vison API.

Development control – GitHub

**Project Learning, enable research and learning of:**

Kotlin – Android development language

Android Studio – Android development Environment

Google Vision API – Image recognition service

Google Firebase – Non SQL database

Connecting Firebase to Android – JQuery

**Risks and how to avoid them:**

Loss of project – Offsite and regular backups.

Hardware failure – Ability to develop on other machines.

Difficulty learning new software – Deeper research into the software.

Firebase and Google Vision API Downtime – Find another provider for the services.

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The sy

Production of an android mobile app which provides plant identification via a user photo and a search facility to display plants which are found in a specific location.

(firebase, youtube making Instagram)