Vision Document

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# Introduction

For this project, the aim is design and implement a web application that will allow users to upload, search, and download spectral data that can be used in research and additional projects through useful search tools and data itself.

# Problem Statement

Research projects that require quantification of colours usually require thousands of spectral measurements. The issue in this; for researchers, is obtaining all that data. For example, comparative studies in birds have characterized the plumage colours for over 40% of described species of birds. However, less than 5% of that data is publicly available to other researchers. The applications that this data is available through is not designed in a way that makes them easy to use and/or provide the metadata that would allow that information to be used in other studies. Consequently, the possibilities for larger studies are very limited and lots of resources are being wasted in order to obtain (usually duplicating) the data for a different research project.

# Stakeholders & Key Interests

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| Stakeholders | Key Interests |
| Researchers  (Professors/Students) | Using the data provided in their projects |
| Hobbyists/Users | Adding their data to be used in research projects |
| Establishments | Access to a large database of spectral information for R&D |

# Users & User-Level Goals

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| User | Goals |
| General User  (Researchers/Hobbyists) | Login, Upload/edit/search/download spectral data, Refine search through meta data/georeferencing/colour range, Upload many files, … |
| Administrator | Login, Upload/edit/search/download/remove spectral data, Edit user’s access rights, Edit parts of the application, Adding meta data tags, … |

# Summary of System Features

* The application will allow users to upload spectral data with it’s meta data tags.
* The application will let users download the data as well as it’s meta data.
* The application will let users search through the data using georeferencing, meta data tags, and specifying a colour range.
* The application will allow users to edit their uploads in case of mistakes.

# Project Risks

* Utilizing and learning Node.js, MongoDB and other modules as a client -> server model.
* Mass uploading of thousands of files as well as storing them in a way to allow for scaling.
* Using a Python/R package in order to “clean” spectral data that is being uploaded.
* Using a polygon georeferencing tool to search meta data in a database.