**Ptoject plan: :Tree Species Classification**

Catalogue

Management plan

* 1. **Responsible personnel**

Table 1.1 showcases the main work packages of the project with the responsible personnel associated. The responsible personnel are chosen executors of the respective work phases based on personal interest and proficiency in the subject matter.

Table 1.1: Responsible personnel with respective work packages

|  |  |  |
| --- | --- | --- |
| Sr. No. | Work packages | Executors |
| 1. | Data acquisition | Patrick |
| 2. | Data washing | Yesong |
| 3. | Model analysis and selection | Matteo |
| 4. | Feature Extraction and Model Training | Add responsible personnel |
| 5. | Testing and Validation | Add responsible personnel |
| 6. | Result analysis | Yesong |
| 7. | Final Documentation | Together |

* 1. **Definition of work packages:**

The project is divided into seven major work packages. Given below is a brief description of each work package. The detailed description of tasks and results involved in every work package can be found in the technical proposal mentioned later in this document.

1.Data Acquisition

Download data from the provided source.

2.Data Cleaning

Filter noise and inconsistencies. Preprocess data to prepare it for model training.

3.Model Analysis and Selection

Evaluate suitable machine learning algorithms for classification (e.g., Random Forest, CNN). Select the most accurate and efficient model.

4.Feature Extraction

Identify species-relevant features (e.g., leaf spectral data, tree height). Generate sample data for training and testing.

5.Testing and Validation

Test the model using a validation dataset. Adjust parameters and perform cross-validation for accuracy improvement.

6.Result Analysis

Analyze the model's performance using metrics such as accuracy, precision, recall, and F1-score.Document key findings and compare with baseline data.

7.Final Documentation

Compile project report with methods, findings, and suggestions for improvement. Prepare a presentation for project stakeholders.

* 1. **Schedule:**

Figure 1.1 showcases the schedule with respective timelines for each work package in a Gantt chart. The schedule also contains the preparation of the final report of the project work

Figure 1.1: Schedule Gantt Chart

**1.4 Documentation and Reviews**

Consider adding milestones for:

* System Requirements Document
* Preliminary Design Review
* Critical Design Review
* Acceptance Review

**2. Technical Proposal**

**2.1 Dataflow**

Define your data flow as follows:

* **Input Data**: Raw data collection from GEE.
* **Data Processing**: Cleaning, feature extraction, and preparing training samples(python Panda etc).
* **Model Training**: Use supervised classification to train the model(CNN etc).
* **Evaluation**: Compare the classified output with ground truth data for accuracy.

**2.2 Workflow**

Outline major stages with clear steps:

1. **Data Collection** – Access datasets and preprocess. GEE downloads
2. **Preprocessing** –
3. **Feature Engineering** – Identify key features.
4. **Model Training and Evaluation** – Train model and assess accuracy.
5. **Deployment** – Deploy model in a suitable environment.
6. weeks pre pros

3-4 weeks