

Defect Predictor

Progress Demo – 22 Oct 2021



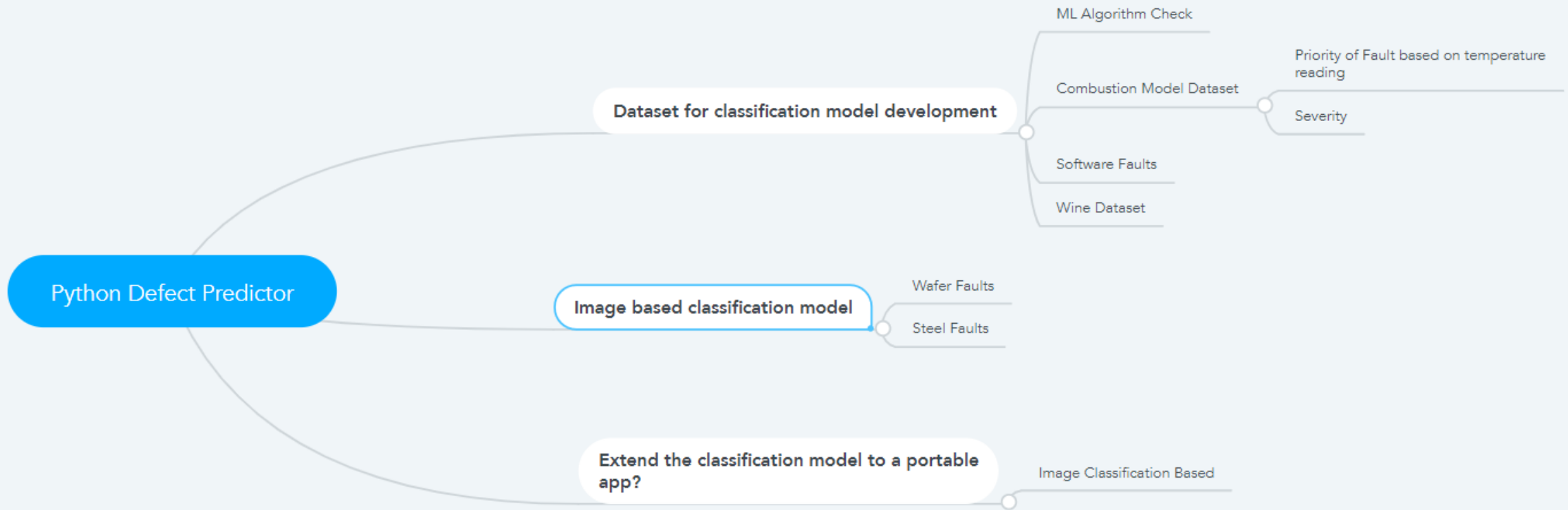
Problem Statement and Planning

- Defect prediction which can differentiate between two levels of defects with an accuracy indicator.

This can be further broken down to:

- Find a suitable dataset.
- Groom the dataset.
- Suitable algorithm for regression.
- Train, Test, Validate.
- Final working prototype in python

Ideas



Dataset Selection

- Wine Quality Dataset
- Has 11 unique features
- Approx. 5000 samples
- Final outcome – Quality (1-10)

Features

1. Fixed Acidity
2. Volatile Acidity
3. Citric Acid
4. Residual Sugar
5. Chlorides
6. Free Sulfur Dioxide
7. Total Sulfur Dioxide
8. Density
9. pH
10. Sulphates
11. Alcohol

- <https://www.kaggle.com/uciml/red-wine-quality-cortez-et-al-2009>

Data Grooming

- Converted Quality to a binary feature
 - 0-5 -> 0 (Bad)
 - 6-10 -> 1 (Good)
- Removed incomplete samples
 - Final dataset, approx. 1600 samples.
- Data Split
 - Train/Test – 70/30

Further Work

- Image classifier
 - Wafer Defect Detector
 - ⑩ Current status
 - ⑩ 68%-70% prediction accuracy
- Software Defect Dataset
 - Extend Logistic Regression model
 - Current status
 - Neural Network Architecture Preperation
- Classifier on Mobile App
 - User takes picture, defect detecte
 - Current status
 - TBD
 - https://www.tensorflow.org/lite/examples/image_classification/overview

