RAJEEV INSTITUTE OF TECHNOLOGY

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
Final Year Project Zeroth Phase Presentation On

"Tobacco Leaves Grading System using Image Processing."

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Abstract

- A grading system based on image processing techniques was developed for automatically inspecting and grading flue-cured tobacco leaves

- Classification is done on three major classes namely class-1, class-2 and class-3 for obtaining global efficiency on the test set consisting about images of each cluster.

- Proposed Tobacco Leaves Classification System performance even on limited training samples (image data set) compared to existing models

Introduction

- Tobacco is one of the most successful commercial crops cultivated on this planet. China, India, Brazil and USA are the major producers of tobacco worldwide

- Quality inspection of tobacco leaves plays a crucial role in quality assurance of tobacco productions

- At present, the grading process is performed manually throughout the world.

- If we can use machine vision technology and design algorithms to grade tobacco leaves automatically.

Figures

Fig: Good quality

Fig: Mid quality

Fig: Low Quality

Literature Survey

- Zhang, J.; Sokhansanj, S.; Wu, S.; Fang, R.; Yang, W.; Winter, P. A trainable grading system have proposed system which finds size of different fruits and accordingly different fruits can be sorted using fuzzy logic.

- Garcia, M.; Barreiro, P.; Ruiz, A.M.; Alonso, R.; Judez, L. Development of a virtual expert for color classification of tobacco leaves have presented a study on colour image processing based intelligent fruit sorting system. In this he used Fruit sorting by classic Bayes classifier, whose parameters were obtained by a study module.

- MacCormac, J. On-line image processing for tobacco grading in Zimbabwe. In Proceedings of IEEE International Symposium on Industrial Electronics, define the process of colour classification, it involves extraction of useful information concerning the spectral properties of object surfaces and discovering the best match from a set of known descriptions or class models to implement the recognition task.

Problem Statement

- Most of the classification and the quality evaluation of the tobacco leaves are manually operated. It is a rigorous task.

- Also efficiency and the stability of error rate are not satisfying enough.

- New technology and equipments are needed to automate the quality inspection process of tobacco leaves.

Goals and Objective

- The project is to find a feasible method to realize the automatic grading of tobacco leaves

- This system is developed to recognize quality of leaves more accurately.

- It classifies the leaves as Quality 1, Quality 2 based on shape, colour and texture.

Methodology

- Machine learning (ML) is the scientific study of algorithms and statistical models that computer systems use to effectively perform a specific task without using explicit instructions, relying on patterns and inference instead

- Python is an interpreted high-level programming language for general-purpose programming.

- Image processing is a method to convert an image into digital form and perform some operations on it, in order to get an enhanced image or to extract some useful information from it.

- Features are the information that are extracted from an image. These are realvalued numbers (integers, float or binary).

Decission Tree Algorithm
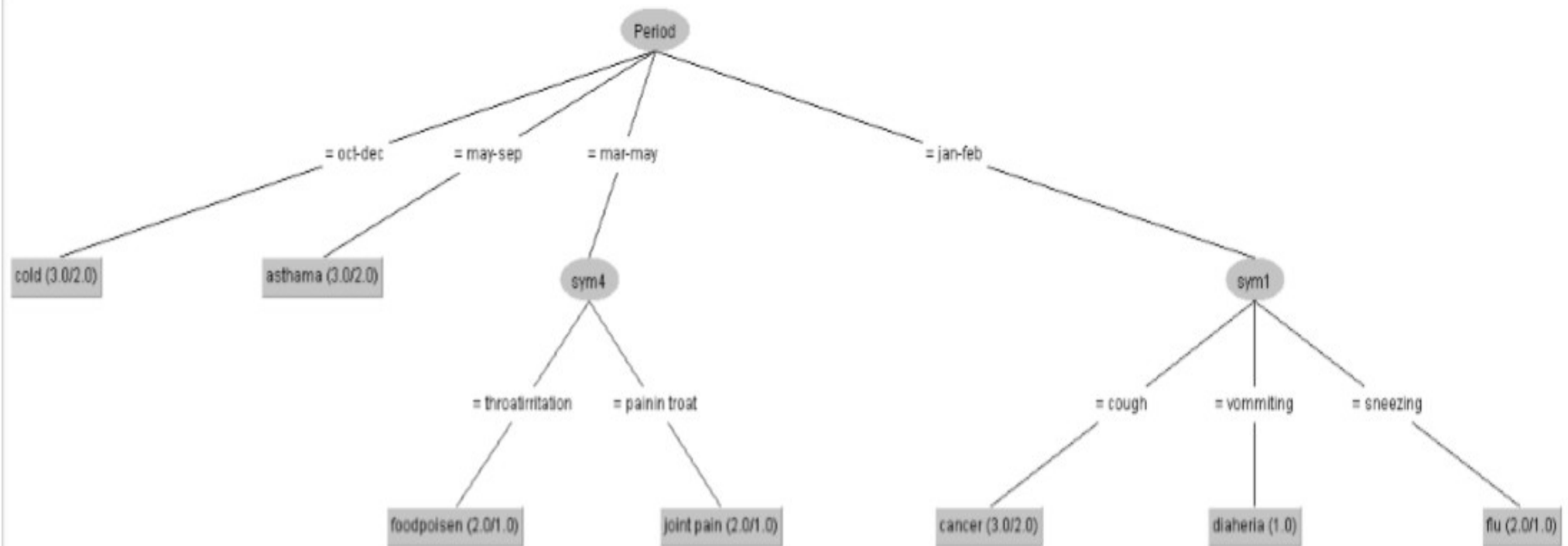
Flowchart
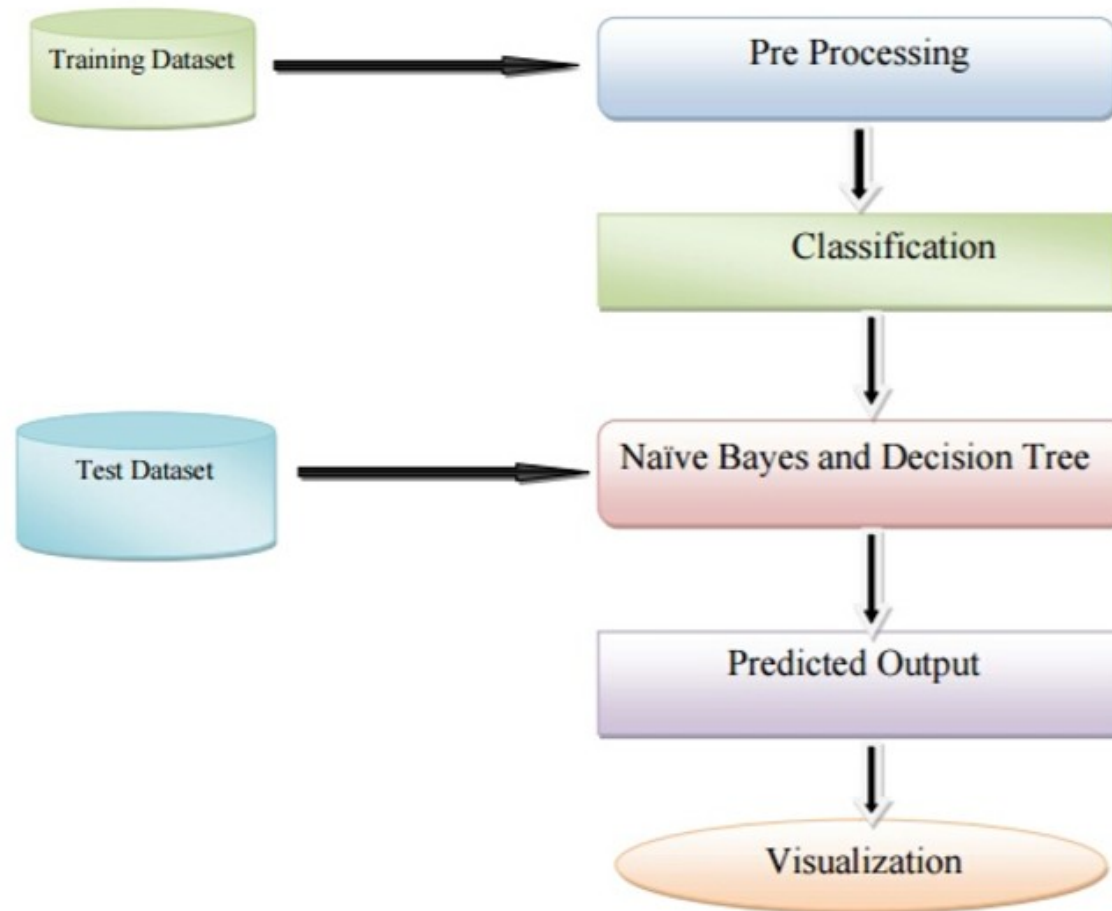
Requirement Specification

Hardware requirements:
- Processor   : Pentium or above
- Processor Speed : 1.6Ghz and above
- RAM   : 4GB and above
- Storage Space   : Approx. 5 GB

Software requirements:
- Operating System : Windows7 & above or Linux
- Language   : Python
- Libraries   : Python Libraries
- Developing software : Anaconda / Spyder

References

References:

1.https://scholar.google.com

2.https://stackoverflow.com

3.https://github.com

Base Papers :

[1]Leaf Disease Grading by Machine Vision and Fuzzy Logic

[2] Factors Influencing Tobacco Leaf Quality an Investigation of the Literature

Thank You