Final Year Project (Computer Science)

UMS UNIVERSITI MALAYSIA SABAH

FACULTY OF COMPUTING & INFORMATICS

CHILI GRADING USING ANN APPROACH

Rozaizie Shafiq bin Roujip
BI18110032 , bi18110032@student.ums.edu.my

Salmah Fattah
salmahf@ums.edu.my

ABSTRACT

The factor that farmers and traders that still have a quite difficult time grading are still using the traditional method, which is using manual grading method that consumes more time, laborers to do the grading and yet still having an error in grading the products. This problem can be solved if traders and farmers change the way of method to the modern view which is using new technology that has been introduced by Federal Agricultural Marketing Authority and Ministry of Algriculture and Food Industries. The objective of this research is to develop a prototype to classify and grade a chili even better and simply. The prototype provides the grading result which is examined from the taken photo of chili that taken from a smartphone camera that is connected to the pc or laptop. The grading is using a system of graphic user interface in MATLAB, then the result will be stored in the directional folder to be analyze. After the artificial neural network algorithm has been used then farmers and admin can grade their products after getting the grading result. And the preparation for categorizing the chili or product would be more quicker than the traditional method.

PROBLEM STATEMENT

While the technology is enhancing, many results was shown by using so many method and techniques. In Malaysia agriculture is one of the main sources to our country development and trade with other countries. Especially for fruits, many business sites demand for the fruit export from our country not only that, the local too, but because of the lack of labourers the process of grading is taking time. In order to produce the best quality of fruit, the automated fruit grading is necessary for fruits grading while to solve the lack of labourers and time.

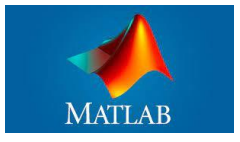
OBJECTIVES

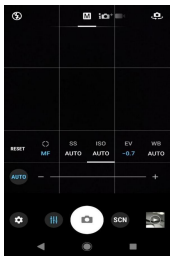
1. To design a model which can grade chilis based on size and skin color texture.
2. To implement the grading system by using Artificial Neural Network technique into the prototype.
3.
4. To evaluate the effectiveness and performance of the system on the chili grading system.

METHODOLOGY

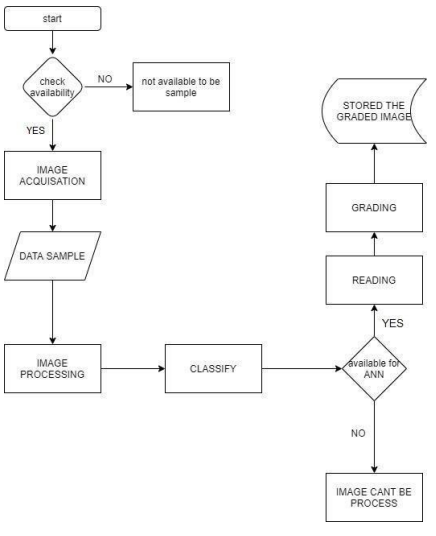
hardware

software





flow chart



CONCLUSION

The chili grading system is a system that grades a chili or we can call it to pepper in another country. but for this system, will be using two-color which is red and green. the system gives much help to the farmer to grade their chili either online or offline. with the help from ANN, it would give more help to classify the color of the sample before giving the final result to grade the chili. for future hope, it would be great if the system could be implemented as an application in smartphones that doesn't need an internet requirement so that farmers can use it every time and everywhere.

IMPLEMENTATION

1. Image Aquisition

image acquistion is a first step for the developement proccess of machine learning for obtaining the image samples. in this research, most of the sample were taken by the hardware and some is from the internet. All the sample is stored in folder in th computer before it stored in the excel.

2 Pre - processing and Splitting data

A. in the pre-proccessing process where the researcher rescalling all the images to the minimum size, all the images will be resize based on the system requirement, because all the images that have been taken and obtain form internet is not in the same size.

B. the splitting data is where the researcher split the data into two data, training and testing data. The tarining data is inital datasets that we teach in our ML system to recognize our data, but the testing data is used to valuate our system accuratcies.

C. in this research, both datasets were testes in 2 algorthms which is ANN and CNN to perform each of the accuracies and performances.

3. Image Processing

A. The initial process is to load up an image from the computer. the image must been already past from pre-process process.

B. Measuring tool is the tool to measure the sample , since the system is the grading system, the measuring tool is a requirement tool for grading and it based on the MAFA and FAMA requiremnt.

4. ANN

A. deep color and light color, both of this process is to how the skin texture of the sample is.

B. image reading is where to see the accurateness of the color texture reading, the result is shown based on the histogram.

5. GRADING

Grading process is where the researcher doing the the grading from the color classification proccess. which here the color will be classify by the ANN. then it will grade if the grade is better then the result is GOOD if not then its the opposite.