Bidesh Banerjee

1. **Introduction** - Good Morning to one and all present over here, today I Bidesh Banerjee and my group stand before you for a presentation on -
2. **Topic Name** - Artificial Vision System for Meat Quality Gradation.
3. **Problem Statement Describe** - We will develop a system which will be able to assess the meat quality in real-time.
4. **Why use Classification and Why not Regression?**
    - We will be using classification algorithms to solve this problem as -
    - **Define Classification Algorithm** - In classification, a computer program is trained on the training data set and based on that training it categorises data into different classes whereas -
    - **Define Regression Algorithm** - In regression, a program enables us to predict a continuous output variable based on one or more predictor variables. Hence, we cannot use regression in this problem.
5. **Importance of the work** - Meat consumption is increasing day by day, so determining the freshness and the quality of the meat is a primary concern among the consumers as spoiled food can cause serious illness in people. And due to covid, many people are ordering food items online. This has increased the necessity for real-time meat quality assessment through images.
6. **Introduce Arunima** - Now I will call Arunima to describe one of the methods previously used to solve this kind of problem.

Arunima Chaudhuri

1. **Introduction** - Thank you Bidesh for extending this opportunity to me. As we can see many of the papers used K Nearest Neighbour to solve this assessment problem.
2. **Describe KNN** { Only Important Points } - KNN algorithm stores all the available data and classifies a new data point based on the similarity. This means when new data appears then it can be easily classified into a well-suited category by using KNN algorithm.
3. **Explain one paper** -
4. **Introduce Shubhodeep** - Now I will call Chanda to describe further methods sed to solve this kind of problem.

Shubhodeep Chanda

1. **Introduction** - Thank you Arunima. Continuing on our discussion. When we were surfing through the internet for various research papers we found out this research paper which used Linear Reg. as its core algorithm.
2. **Describe Linear Reg.** - Linear Regression is a supervised ML algorithm which is used to predict continuous data. Linear regression shows the linear relationship between independent variable and dependent variable.
3. **Explain Logistic Reg.** -

4. **Explain Logistic Regression Paper**
5. **Describe SVM** - SVM is a supervised ML algorithm which can be used for both classification and regression. The goal of the SVM algorithm is to create the best hyperplane that separates the n-dimensional space into classes.
6. **Explain SVM Paper**
7. **Introduce Debdoot**
8. **Future Work**
    a. So, the first thing we will do is the preparation of the dataset. Professors of Malda food technology and our Supervisor will help us in the preparation.
    b. The next thing we will do is run the existing models ……
    c. The last thing we will do is build our own statistical model to develop the application on an ideal platform. Due to high computational complexity of deep learning methods, we will try to use it as little as possible.

Debdoot Roy Chowdhury

1. **Introduction** - Thank you Shubhodeep. On some of the paper, we found out about an unsupervised learning getting used i.e. K-Means algorithm.
2. **Explain K-Means** - K-Means clustering is an unsupervised machine learning algorithm which groups the unlabelled data sets into different clusters.
   We have not gone into depth of this algorithm as we will not use it in our methods.
3. **Conclusion**
    a. So we can conclude that accurate meat quality assessment is a necessity in today's world.
    b. And we can see that meat freshness cannot be assessed accurately by any single conventional index because every index reflects only partial characteristics of a meat sample.
    c. Moreover, artificial vision and machine learning is a dependable technique, and it has shown its efficiency in many problems in quality assessment.
    d. But it only permits us to detect external features, but not internal characteristics.
    e. However, as neural networks implementation requires high computational power which is not common in most of the devices we will stick classification algorithms for the assesment.
4. **Recall Shubhodeep** - Shubhodeep will now finish up the presentation by clarifying our future on work on this project.

RGB - The RGB color model is an additive color model in which the red, green, and blue primary colors of light are added together in various ways to reproduce a broad array of colors. The name of the model comes from the initials of the three additive primary colors, red, green, and blue.

HSB - Hue is determined by the dominant wavelength of the visible spectrum.
Saturation pertains the amount of white light mixed with a hue.
Brightness refers to intensity, distinguished by the amount of shading mixed with the hue.

HSI - HSI combines information, both colour and grayscale from an image. HSI comes from the Hue, Saturation, Intensity. Where Hue describes pure colours like red, blue, or yellow. Saturation describes the degree to which pure colours are softened in white. Intensity / brightness / luminance is an attribute that states the amount of light received by the eye regardless of colour.

L*a*b* - The Lab color space model has been used as it is designed to approximate human vision which means that all the colors visible to a human eye are described in this model and this suits the requirement to segment the gills from the fish image.