An Energy Measuring System using Mobilenet V2 Model

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Abstract— Health is currently a very prominent concern for people. More options exist for measuring the health care of people. It is possible to measure the quality of health care in various ways. Taking quality food and reducing calories may be a measure of health, as well as frequent health checks. Regular health checks allow you to detect medical issues at the earliest stage and identify illnesses before they become problematic. They must eat food of acceptable quality so they do not get sick often. In this study, one of the measurement techniques is described. Measuring food calorie is a way to get people to be more aware of their food. These techniques teach the public to control their diets according to calories.

Keywords— Energy, Measuring System, Image Segmentation,

I. INTRODUCTION

A measuring system achieves the desired result using the following tools. For deep learning tasks, such as creating models and predicting objects, the Keras tools are used. It is very easy to maintain and provides scalability. These models can be utilized for prediction, feature extraction, and fine-tuning. Pillow tool is a light weight image processing tool. Pre-processing the images of our dataset is performed with the Pillow tool. Backend framework for web application development is provided by the Streamlit tool and to deploy the machine learning model into product in the frontend. It is designed to facilitate the development of large streaming applications. A web scraping tool called BeautifulSoup extracts data from the internet in order to predict what results should be expected from it. NumPy tools support the mathematical features. The image matrix handling is carried out using a set of NumPy tools in Python. The goal of NumPy tool is manipulating the data. The estimation of calorie consumption level monitored every day. The people who are overweight and obesity can utilize this system which helps them monitor their calorie measurement everyday [1]. It has been found that there are better ways of applying these models to object detection according to MobileNetV2. The important thing to note is that in addition to learning how to build mobile semantic segmentation models, you will also see a prediction of the energy level of the predicted object [2]. In order to improve hospital management, high quality care must be provided to people. Hospital management's performance enhances clinical quality measurement [4]. The new method for measuring facility management performance in primary health care (PHC) is used to measure the performance of facilities [7]. Image segmentation is carried out using the Mobilenetv2 architecture. A variety of datasets were used to test the recognition of images. It was found that the MobileNetV2 model had higher accuracy rates than MobileNetV1 when compared with other models [11]. It provides accurate classification of an uploaded image.

II. AN OVERVIEW OF ENERGY MEASURING SYSTEM

Image segmentation and accurate prediction worked with MobilenetV2 architecture. MobileNetV2 is a convolutional neural network architecture that seeks to perform well on mobile devices. It is an inverted residual structure where the connections are in7 between the bottleneck layers. Mobilenet support any input size than 32x 32. The user can use this type of system to detect the calorie count of fruits and vegetables. People take more attention to their health. This study helps them identify the calorie of given model. Based on their health condition they will intake food.

In the present circumstances, Food that is of high quality may differ in intention between people, despite the intake of healthy food. Such cases they find difficult to predict the calorie level for certain food. Calories are measurement of energy. The number of calories in a food or drink decides the amount of energy stored in that food item.

This study discussed about how much amount of energy consumed from fruits and vegetables. It is a simple web application that every user can use it for increasing or decreasing their energy level. User need to upload the Image of any fruit or vegetable. This system will automatically classify the image and it will give you the prediction about the name of fruit or vegetable, and now we have added one another module which will give you the energy level of the predicted object. This is web application, so user can directly use it in any browser. A user desires to find the calories of fruits and vegetable. An object's energy level can be predicted by utilizing a prediction and classification method. Web application is developed for the user to predict the calories of the predicted object. The Mobilenetv2 architecture is used for image segmentation. It provides accurate classification of an uploaded image.

III. ARCHITECTURE OF ENERGY MEASURING SYSTEM

The Figure 1. Shows the workflow representation or pictorial view of Energy level measuring system which predicts the calorie count of given model. This Measuring System consists of following section Collection, Conversion, Confirmation. The architecture of energy measuring system utilized by people to detect the calorie of fruits and vegetables. The people upload the image or model to the web application. The web application is very simple and easy to use by any user. It recognizes the model and resize it according to the available model from data store. The data store which contains the images of fruits and vegetables. The model converted into vectorized form. Then

verifies the model with the data set. Once the confirmation done with imported model, the category predicted. After the Originate the Category, the model projected. New module added with the system is to predict the calories of projected model. Then the number of calories displayed from the accessible dataset which is energy level for the model.
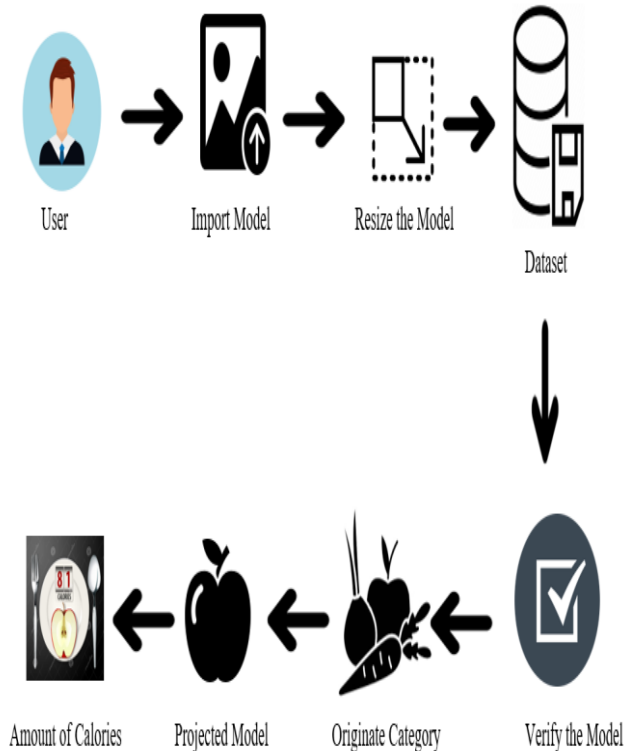

Figure 1. Architecture of Energy measuring System

In Collection section, user import the image to web application. Streamlit builds the interactive web application with a variety of data gets generated. In Conversion section, BeautifulSoup plays a role to extract the image and convert it into vectorized form. Image vectorization is accomplished with Numpy tool. Pillow tool improves the image quality. Pillow tool with NumPy tool performs the image manipulation in various aspects such as reducing the size of the image and transform the color of the image. Then the category of the image is predicted. In confirmation section, Keras tools give the prediction of predicted category. From the category the expected image projected. Then it displays the detected amount of calorie for the image.

The flow chart of Energy measuring System shown in the Figure 2. Which represents the flow of the process involved in energy measuring System. In the beginning a user uploads the image on the web application. Then the received image can be resized to check with available data set. Before verifying the data, it filters similar data from the data set. After verification the model, the category of model recognized. Based on the recognized model, it predicts the count of calorie. Finally, it shows the amount of energy for the received image.
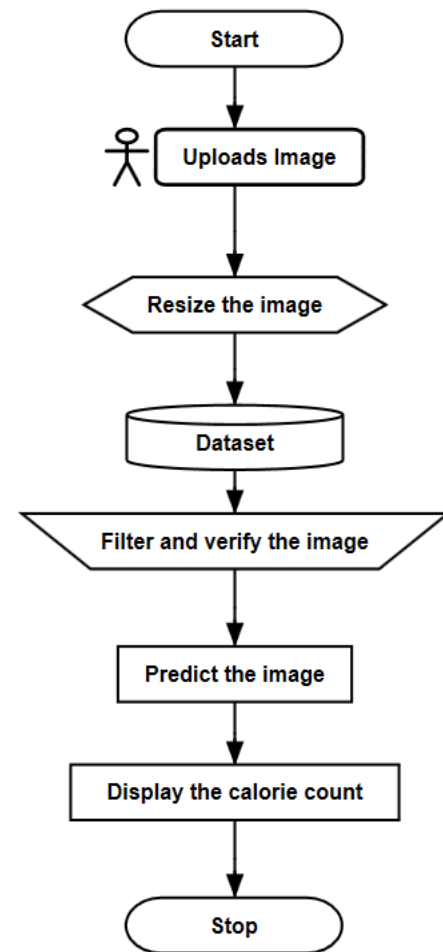

Figure 2. Flow chart for Energy measuring System

IV. CONCLUSION

Mobilenet architecture involves in image classification and segmentation. When people are approaching this method, they can identify the calorie level for particular item. In this study, we discussed about the calorie measures of fruits and vegetables. Few people in the need of having low level or high-level calorie food so it helps them to take care of their health. Enhancement of this study would be prediction of how much calorie need to be burn. To provide healthy life calorie burnt is necessary. As part of future work, we hope to include any machine learning algorithm that can be used to find high calories from fat.

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