

# Nutrition Assistant Application

## Introduction:

With more and more attentions paid on health, people begin to care about healthy diet options created by experts on nutrition. However, it will take a long time to observe the effects by taking healthy diet. This causes great difficulty for users to follow the healthy diet strictly. Most existing applications are not user-friendly in inputting information to the application. Then it becomes difficulty to track for exact health status.

## The literature review:

People pay attention to fitness more nowadays, so proper diet became more important as well. However, delicious gourmet and easy access challenges people's ability to keep to their diet. Although people have many ways of logging their food and calories , it can still be difficult for people to keep a consistent log without resolution . It can still be complicated for many people to keep track of their diet despite many food logging applications .

Challenge 1 : It is easy for people to eat unrestrictedly, therefore, difficult to keep to a healthy diet. This is challenging from both the psychological and physical perspectives . Even though there are various products that claim the effectiveness of controlling the diet, the actual effectiveness is still unknown.

Challenge 2 : Results from having a good diet are subtle and delayed. Thus, following a diet might seem futile, and may discourage people from continuing their diet. Research shows that more and more people start to understand the importance of controlling diet, but very few are able to keep the healthy diet consistently. This is also an important reason why most people fail on controlling diet or weight.

Challenge 3 : People lack the habit of logging their diet, so it is important to have a simple way for people to track their diet. Controlling diet requires persistence and motivation. While it is difficult to see the subtle changes, if people could monitor the steps and efforts clearly, it can provide another effective way of gaining confidence and motivation.

An android application was developed by students of California state Polytechnic university which overcame these challenges. APPNAME is an android application that helps people keep track of their consumed food and recognize their unhealthy eating habits. It uses a machine learning image recognition trained to recognize different kinds of food, making each food entry much simpler through recognizing the food photo taken by the phone camera and filling the corresponding nutritional information.

For the food classification feature to be accurate on user taken photos, which are usually of low quality and noisy lighting, the image classification model training data set has to be carefully chosen in order to yield the best performance on user photos . In addition to choosing apt training images, the number of classification classes and the amount of images to train one class also heavily influences the accuracy of the model. From several trials of different model training, we found that when the amount of images in each class increased the test accuracy decreased, and when the amount of classes increased, the accuracy also decreased. This observation on training doesn't support the goal of the model since the model needs to incorporate many classes in order to recognize a wide variety of food, but if more classes are added to the training, the accuracy will decrease. Thus, it is important to train with more epochs supported by the observation that the accuracy increases as the number of training epochs increased.