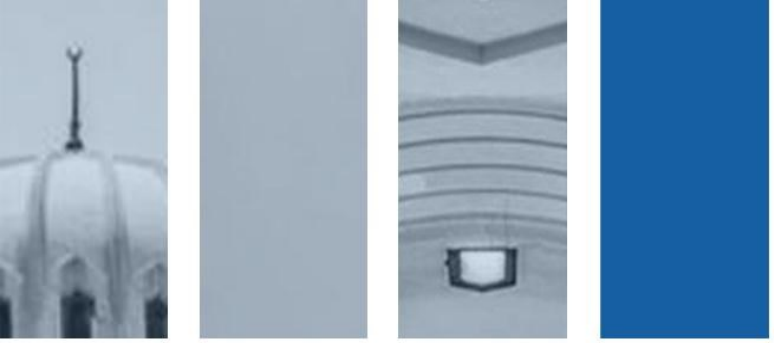

AugmentLicious

Program: Mainstream.

Course: CSE 464

CSE 64: Image Processing & Pattern Recognition
4th Year CSE, 2nd Semester
2020/2021

Team Names:

1- Mohammed Obada Bahaa Mohammed Sarsar (16W0061)

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Contents

1.Introduction

How many times have you ordered a meal in a restaurant then see it’s different than what you have imagined? How many times you ordered your sandwich sans-tomatoes then it came with it and you have to return it? Has the waiting time for the waiter to come over to your table ever bothered you? Isn’t it strange that we still face those problems in a world where computers can do almost all human jobs? This is what ignited our project idea.

Our project is a project that aims to maximize the best user experience in food restaurants, the whole idea revolves around not only being able to imagine your plate by knowing every ingredient but leave nothing to your imagination by using augmented reality and pattern detection algorithms to make your menu come alive right through your phone screen, our concept is that luxury shouldn’t be a luxury anymore with the rising technologies, customer can provide easier feedback, restaurants also are benefited that customers are less likely to choose a plate that they won’t eventually.

Our project will be a mobile application that detects our menu pages and then shows us an augmented menu of the plates on this page by detecting only the written pages of our menu and then can order the plate through the application, customizes the order as he/she wishes (adding ingredients, removing ingredients, meal size, sides ..etc.) saving the hassle of the waiter forgetting the order details and the annoyance of the wait for the waiter to order the plate. Customers may also pay for their meals through the application by using software technologies by using their credit/debit cards. This application is integrating the home ordering experience with the restaurant's order-in experience.

2.Detailed Description of The Project

The application uses the java mobile technologies to create an application that first access the camera and then our OCR model detects texts (meal names in our project).

In OCR, the bounding box can be created around the text through the sliding window technique. However, this is a computationally expensive task. In this technique, a sliding window passes through the image to detect the text in that window, like a convolutional neural network. We try with different window size to not miss the text portion with different size. There is a convolutional implementation of the sliding window which can reduce the computational time.

And then it connects the detected text to the 3D Model corresponding to it.

Three-dimensional (3D) modelling of an object can be seen as the complete process that starts from data acquisition and ends with a 3D virtual model visually interactive on a computer. Often 3D modelling is meant only as the process of converting a measured point cloud into a triangulated network (‘‘mesh’’) or textured surface, while it should describe a more complete and general process of object reconstruction. Three-dimensional modelling of objects and scenes is an intensive and long-lasting research problem in the graphic, vision and photogrammetric communities.

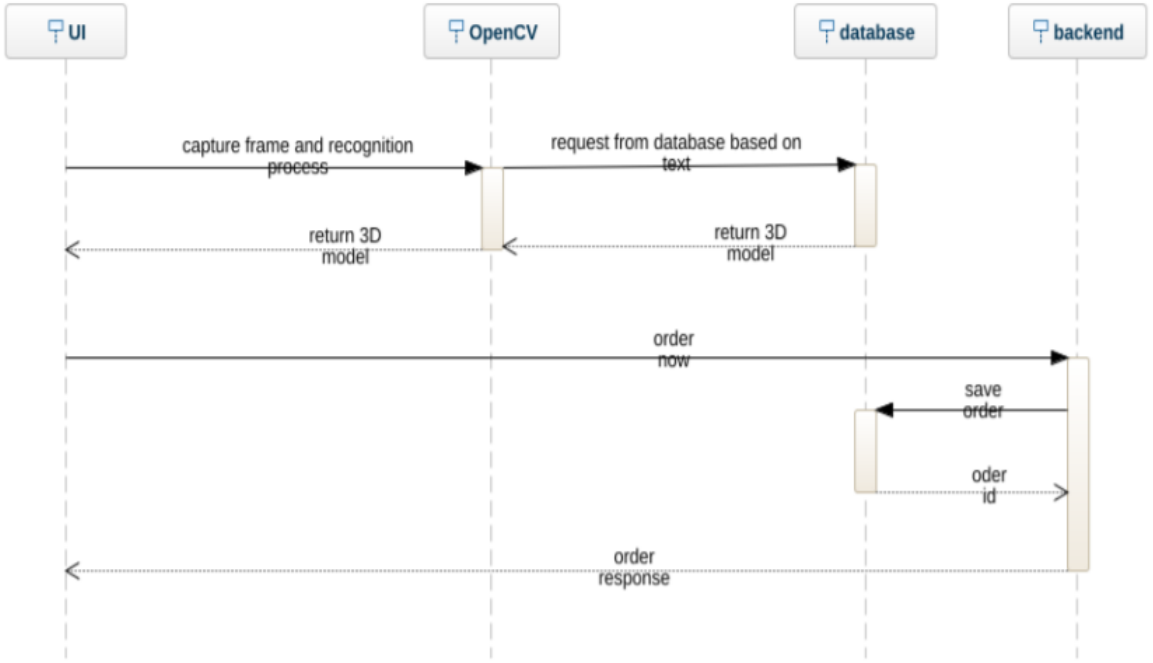
After that we use the OpenCV library in Java to load the model on to the screen.

And with the aid of some software engineering, we can make the user either order this meal or he can go back to detecting another text.

3.Team Members Roles:

Name	ID	Role
Ali Sayed Ali Mohamed	**1600832**	**software(OCR+main app)+ documentation**
Ghada Ragab Abdelnaby	**1600953**	**software(Augmented model + main app)+documentation**
Mohamed obada sarsar	**16w0061**	**software(OCR+main app)+ documentation**
Mostafa Ashraf Mohamed	**16T0107**	**software(OCR+main app)+ documentation**
Mariam Salah Abd-El Hamid Mohammed	**1601371**	**software(Augmented model + main app)+documentation**

4. sequence diagram of how the system works



5.Application Guide

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1- Entry Point then move to app after 2 seconds

2-main app window that detects meal

3- meal itself, user can take the order or check other meals