



**SHRI VAISHNAV VIDYAPEETH VISHWAVIDYALAYA, INDORE**  
**SHRI VAISHNAV INSTITUTE OF INFORMATION TECHNOLOGY DEPARTMENT OF**  
**COMPUTER SCIENCE & ENGINEERING**

**JANUARY-JUNE 2021**

# **Project Report**

*on*

## **IOS FACE DETECTION AND OBJECT CLASSIFICATION USING ML (MACHINE LEARNING) API.**

*In partial fulfillment of requirements for the degree*

*of*

**BACHELOR OF TECHNOLOGY  
IN**

**COMPUTER SCIENCE & ENGINEERING**

*Submitted by:*

DRASHTI BHASIN [19100BTCSEMA05482]

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*Under the guidance of*

MR. NITIN RATHORE

**SHRI VAISHNAV VIDYAPEETH VISHWAVIDYALAYA, INDORE**  
**SHRI VAISHNAV INSTITUTE OF INFORMATION TECHNOLOGY**

**DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING**

**DECLARATION**

We here declare that work which is being presented in the project entitled “**IOS FACE DETECTION AND OBJECT CLASSIFICATION USING ML (MACHINE LEARNING) API**” in partial fulfillment of degree of **Bachelor of Technology in Computer Science & Engineering** is an authentic record of our work carried out under the supervision and guidance of **Mr. NITIN RATHORE** Asst. Professor of Computer Science & Engineering. The matter embodied in this project has not been submitted for the award of any other degree.

DRASHTI BHASIN

KHUSHI PRAHAN

RAVNISH SINGH

Date:

**SHRI VAISHNAV VIDYAPEETH VISHWAVIDYALAYA, INDORE**  
**SHRI VAISHNAV INSTITUTE OF INFORMATION TECHNOLOGY**

**DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING**

**PROJECT APPROVAL SHEET**

Following team has done the appropriate work related to the “**Name of the Project**” in partial fulfillment for the award of **Bachelor of Technology in Computer Science & Engineering** of “SHRI VAISHNAV INSTITUTE OF INFORMATION TECHNOLOGY” and is being submitted to SHRI VAISHNAV VIDYAPEETH VISHWAVIDYALAYA, INDORE.

**Team:**

- 1. DRASHTI BHASIN [19100BTCSEMA05482]**
- 2. KHUSHI PRAHAN [19100BTCSEMA05486]**
- 3. RAVNISH SINGH [19100BTCSEMA05495]**

**Internal Examiner**

**External Examiner**

Date

**SHRI VAISHNAV VIDYAPEETH VISHWAVIDYALAYA, INDORE**  
**SHRI VAISHNAV INSTITUTE OF INFORMATION TECHNOLOGY**

**DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING**

**CERTIFICATE**

This is to certify that **Ms. DRASHTI BHASIN, Ms. KHUSHI PRAHAN and Mr. RAVNISH SINGH** working in a team have satisfactorily completed the project entitled “**PROJECT TITLE**” under the guidance of **Mr. NITIN RATHORE** in the partial fulfillment of the degree of **Bachelor of Technology in Computer Science & Engineering** awarded by SHRI VAISHNAV INSTITUTE OF INFORMATION TECHNOLOGY affiliated to SHRI VAISHNAV VIDYAPEETH VISHWAVIDYALAYA, INDORE during the academic year **January 2022-June 2022**.

(Name of Guide)  
**Project Guide**

**Dr. Anand Rajavat**  
**Director & Head,**  
**Department of Computer Science & Engineering**

## ACKNOWLEDGEMENT

We are grateful to several persons for their advice and support during the time of complete our project work. First and foremost, our thanks goes to **Dr. Anand Rajavat** Head of the Department of Computer Science & Engineering and **Mr. NITIN RATHORE** the mentor of our project for providing us valuable support and necessary help whenever required and also helping us explore new technologies by the help of their technical expertise. His direction, supervision and constructive criticism were indeed the source of inspiration for us.

We would also like to express our sincere gratitude towards our Director **Dr. Anand Rajavat** for providing us valuable support.

We also owe our sincere thanks to all the **faculty members** of Computer Science & Engineering Department who have always been helpful.

We forward our sincere thanks to all **teaching and non-teaching staff** of Computer Science & Engineering department, SVVV Indore for providing necessary information and their kind co-operation.

We would like to thank our parents and family members, our classmates and our friends for their motivation and their valuable suggestion during the project. Last, but not the least, we thank all those people, who have helped us directly or indirectly in accomplishing this work. It has been a privilege to study at SHRI VAISHNAV VIDYAPEETH VISHWAVIDYALAYA, INDORE

## ABSTRACT

The main aim of this project is to build a system that detects objects from the image or a stream of images given to the system in the form of previously recorded video or the real time input from the camera. Bounding boxes will be drawn around the objects that are being detected by the system. The system will also classify the object to the classes the object belongs. Swift Programming and a Machine Learning Technique named using Core ML(Machine Learning).

Image detection. That's where an app can detect an image, and then respond when the iOS device camera recognizes that image in the real world. Image detection works with two-dimensional items such as pictures and photographs.

The app in this sample identifies the most prominent object in an image by using MobileNet, an open source image classifier model that recognizes around 1,000 different categories.

Each time a user selects a photo from the library or takes a photo with a camera, the app passes it to a Vision image classification request. Vision resizes and crops the photo to meet the MobileNet model's constraints for its image input, and then passes the photo to the model using the Core ML framework behind the scenes. Once the model generates a prediction, Vision relays it back to the app, which presents the results to the user.

The sample uses MobileNet as an example of how to use a third-party Core ML model. You can download open source models — including a newer version of MobileNet — on the Core ML model gallery.

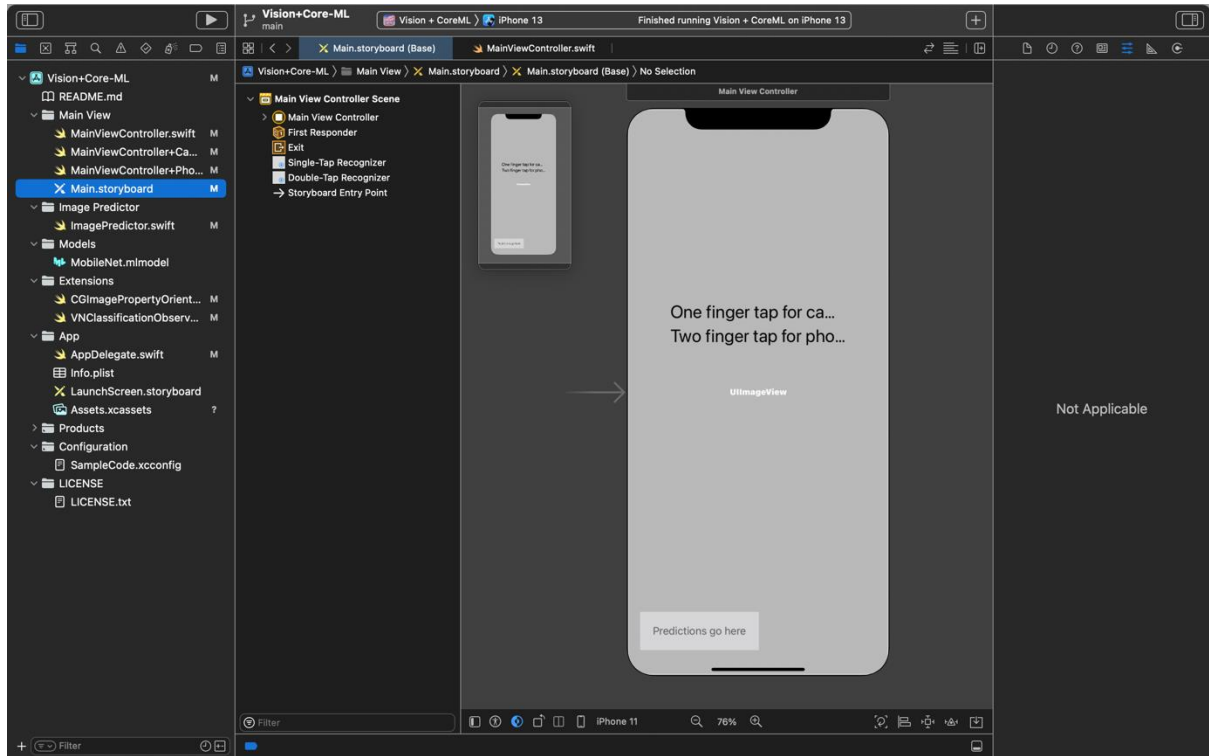
Before you integrate a third-party model to solve a problem — which may increase the size of your app — consider using an API in the SDK. For example, the Vision framework's `VNClassifyImageRequest` class offers the same functionality as MobileNet, but with potentially better performance and without increasing the size of your app (see [Classifying Images for Categorization and Search](#)).

To take photos within the app, run the sample on a device with a camera. Otherwise, you can select photos from the library in Simulator.

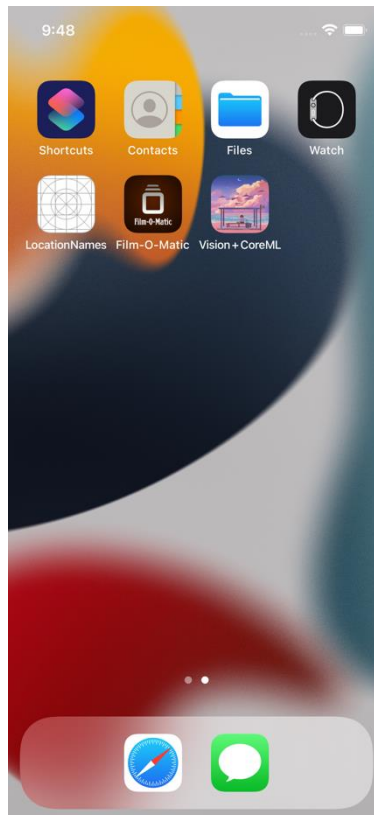
## List of Figures

The Application required UI and Image assets.

UI-



9:48



One finger tap for camera.

Two finger tap for photos.



## IMAGE ASSETS-

