# REAL-TIME OBJECT RECOGNITION USING TENSORFLOW

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***Abstract:***    In Today's world, people get curious as soon as they see any new object and want to know more about that Object. Nowadays there are applications which give detailed information as soon as you enter the name of the object. But what if you get the information based on real-time? This application allows the user to learn about the object without needing a text based search. The object will be scanned and the information related to that object will be displayes on screen. The user can save the information and can share it too.

***IndexTerms*** - **image processing,tensorflow,Android application,Training Set,SURF algorithm,Click-o-Info,  machine learning.**

## I. INTRODUCTION

The main function for object detection and recognition systems is to detect and recognize if any query object from corresponding environment was known prior. Today's world is enclosed with large number of digital visual information.[2] To analyse and organize this ocean of visual information, image analysis techniques are required. In particular useful would be methods that could automatically analyse the semantic contents of images or videos.[1].

Its features automatically linked through the internet are easily operable. It is meant to save time, energy and eventually minimize Human Efforts to a great extent. The content of the image determines the significance in most of the potential uses. One important aspect of image content is the objects in the image. So there is a need for object recognition techniques.

## II.  EXISTING SYSTEM

This is similar to the Apple's Siri and Microsoft's Cortana, which uses voice based as well as text-Based search and also Google goggles which recognizes text on the given object. This project will help us to find the objects with more ease and effortlessly. And the technology used is efficient and easier to use.

### III. PROPOSED SYSTEM

The proposed system is used to detect the real-time object recognition using various algorithms. Once the object is detected by the camera using this system, the information relevant to that object is displayed. The project will be developed using Tensor flow API Version 1.0.0. where will be be training the system by adding various dataset. We will also be using machine learning algorithm(Supervised learning and Unsupervised Learning)to train the system, where the input will be given and based on previous available knowledge the system will predict the output. The android application will also be developed to ease the access of the user.
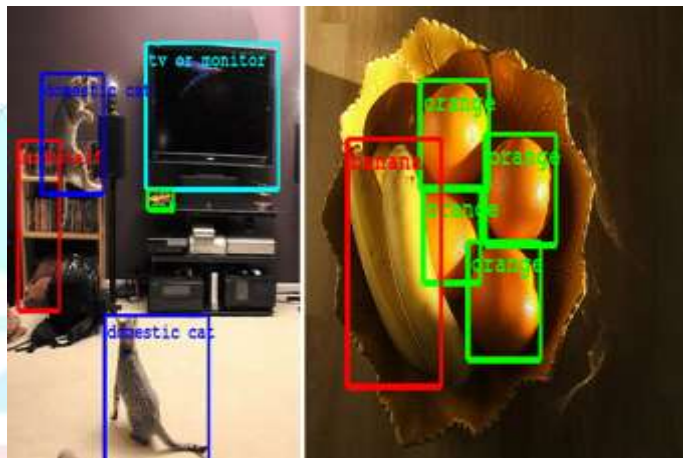


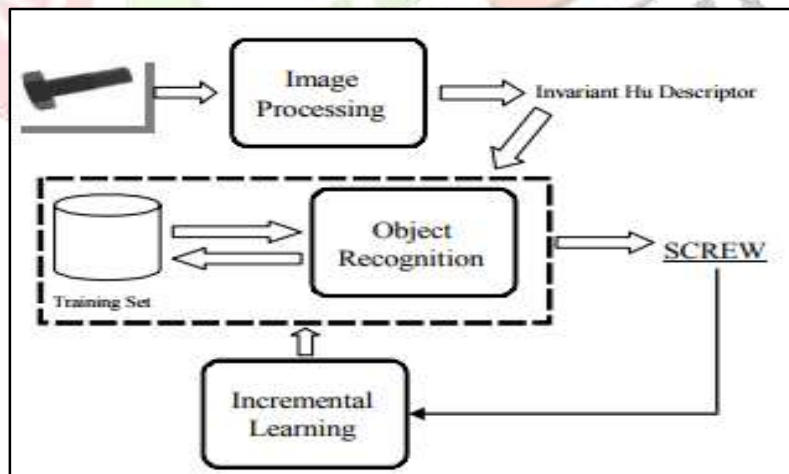Fig-1:- System overview

### IV. SYSTEM IMPLEMENTATION



Fig 2 – Block diagram of system

The figure represents the block diagram of the system. As soon as the camera detects the object, in background the image processing will take, At first step, the interest point for object and origin image has been detected this step also called SURF point's detection, these points contain information about features also

called blob features[1. We select strongest features by attend a specific threshold and selection criteria then all features are return represent the strongest features for our interest object and origin image. Then in second step, feature descriptor also called features vector are extracted from pixels that surrounding an interest point. .Third step is a matching step that match features from first set of (object image) to second features set (origin image). Matching step return indices of the matching features for tow features set. In incremental learning we will add dataset of new objects to train the model to give better efficiency.

**System GUI :**

➢ This is the logo of our application which will help user identify it uniquely.
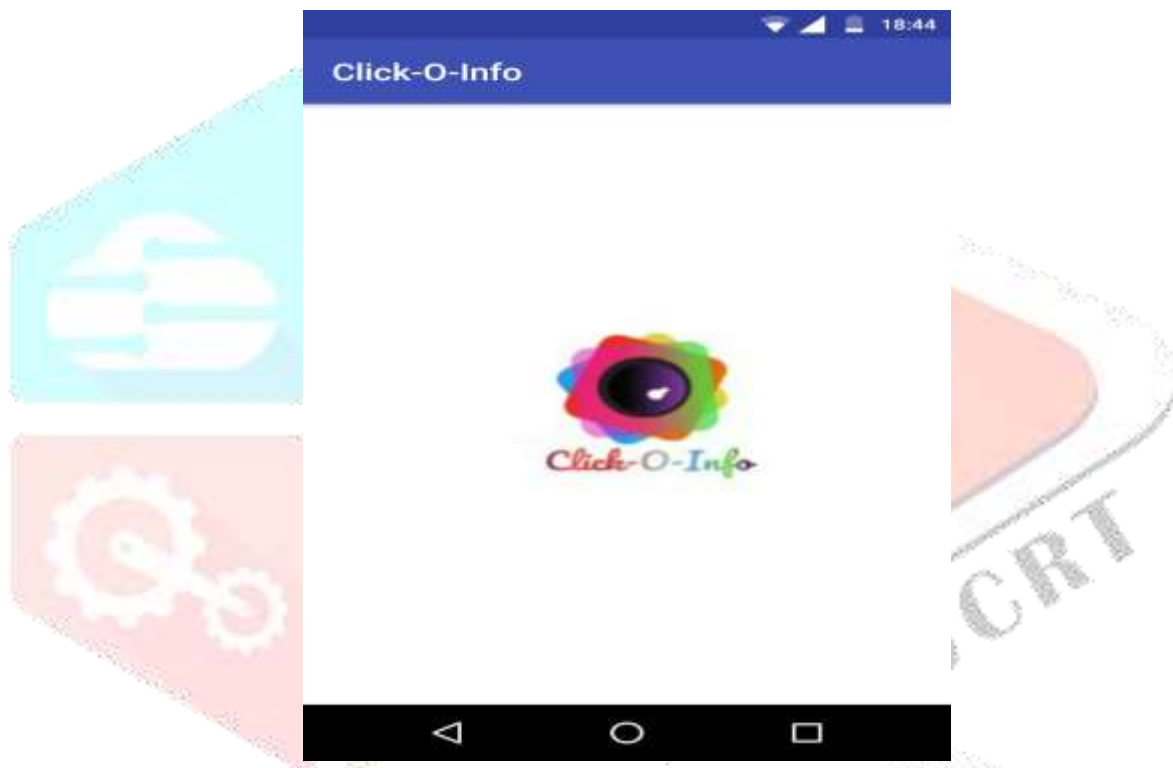


➢ This is the homepage of our apllication where user will be given three options :
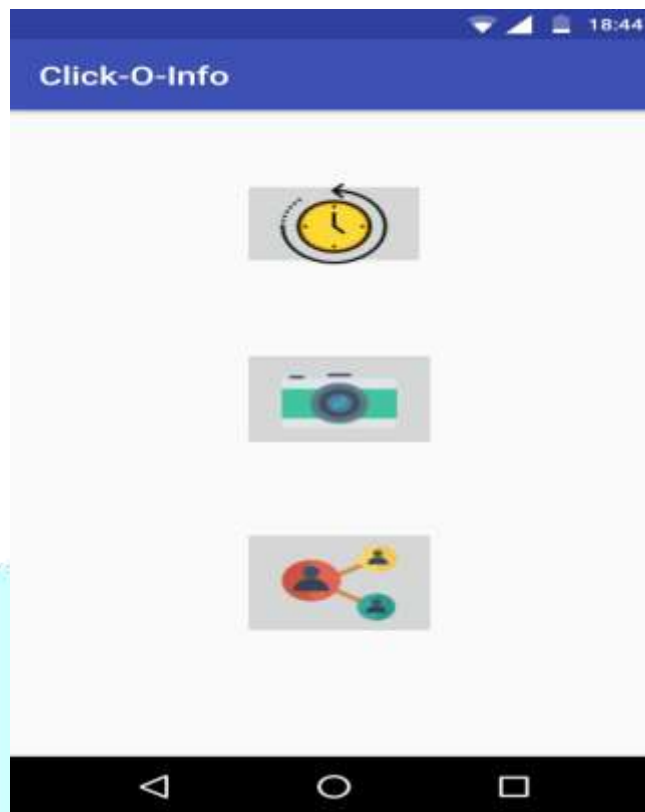
1.) History - It will store all the previous scanned   objects for faster readability

2.) Camera - Upon clicking this tab, the camera will open to scan the desired object

3.) Share - The user can also share the information of that particular object with anyone.

## V. APPLICATION

This System has vast field of application in real world as the name itself says Real-Time object recognition. Here we have a variety of applications:

For e.g. Nowadays these housewives tend to watch cookery shows that airs on television's and cook different types of food. Here when they find any new ingredient that isn't known to them they can just check it on this application and will find all the information related to it with pictures and its alternate Hindi or Marathi names.

This also would work for farmers when they find some new type of hardware tool or farming equipment to know more about it just scan it on the application.

Also this can be used by the people with speaking disabilities instead of always asking people around about certain things they don't know they can simply capture the items in camera and get to know about it. etc.

## ADVANTAGES :

● Easy access to information without text based search

● Available in three different languages i.e; Hindi, English, Marathi

**LIMITATION :**

- Necessary Internet Connection.
- Good Quality Camera.

## VI. CONCLUSION

In this paper, we have discussed what basically Object Recognition is and why it is needed. We have also given a brief of what is Tensor Flow, its working and its application in our project. We have taken a dataset to test the application wherein we check whether the given input image object already exists in the database. If the input object is found in the predefined database it will retrieve all the data or information related to that object for the user's requirement. This application can be used by multiple audiences like farmers to know about new devices, housewives to know about the new ingredients that they watch on cookery shows, kids to learn about new fruits, vegetables, places etc.

## REFERENCES

i.    Tawfiq A. Al-asadi and Ahmed J. Obaid 2, " Object detection and recognition by using enhanced Speeded Up Robust Feature", International Journal of Computer Science and Network Security, VOL.16 No.4, April 2016

ii.   Khushboo Khurana, Reetu Awasthi "Techniques for Object Recognition in Images and Multi-Object Detection"

iii.  Nidhi "Image Processing and Object Detection" International Journal of Applied Research ,2015

iv.   Shakuntala Satyawana, Surendra Kumar Agarwal   "A Review Paper on Image Segmentation and Object Recognition Procedures" International Journal of Science,Engineering and Technology-2016, Volume 4 Issue 1

v.    Pankaj Kumar Gautam, Divya Patel    " Object Detection for Improve the Classification Accuracy and Robustness using different Techniques", International Journal of Computer Applications (0975 – 8887) Volume 112 – No 11, February 2015

vi.   Garrick Orchard, Cedric Meyer, Ralph Etienne-Cummings *Fellow, IEEE*, Christoph Posch *Senior Member, IEEE*,Nitish Thakor *Fellow, IEEE*, Ryad Benosman "HFirst: A Temporal Approach to Object Recognition", IEEE, Aug-2015