Aim:

So everyone knows AR can be used to build cool stuff like games but We wanted tocreate something which can be applied in day today life. So what exactly can it be we thought. Thats when we realised why cant we do object recognition. But we didnt want the focus to be on the part of object recognition. We wanted to create something more like a utility application.

That’s when we thought why cant we use google image search. We found out that by passing an image it will return a label.

Now the question which arose was what to do with a label and an object.

We pondered upon this. We could place the label in coordinates got from the object by using mapbox sdk that calculates the position vector between the object and person. But this seemed like a lot of work.

Or we could create a markerless ar where the label just hung in space. It just didn’t seem right.

So we thought why cant the object’s image be made as a marker. This way the text can be made to replace the marker which is the object thereby augmenting the scene to show what the object is.

This resulted in run time user defined markers being added.

Now that the object is determined and it is labelled we decided to take it up a notch and get the description the object using web scrapping.

After that we use a text to speech api to read out the meaning.

Virtual Reality:

What is the difference between virtual and augmented reality

Vr is basically a computer generated envn within which u interact

Ar is adding elements into ur reality to enhance it

So what is markered ar?

Basically ar involves placing elements into our environment. Thereby creating the appearance that something is there despite not being present in reality.

So now the system should know where to place these elements. It just cant be hanging in the air can it.

To identify where to place the element markers are used.

Markers also serve the purpose of estimating the orientation and position of the camera so as to gage the distance between the object and the camera.

So basic markered ar is pretty simple to set up

1. SetupVuforia
2. Create a Marker – This should have a lot of distinct key points so as to serve as a reference Eg, QR code
3. Setup marker as an Image Target

What Vuforia does is store the marker in a database.When the camera runs it detects and tracks features using the stored marker

Once image is detected it remains until end of cameras field of view

1. Models are added so as to be displayed on the image target.

But what we have doe is extend this idea into a runtime environment

So instead of setting up the markers beforehand we do it only when the image is captured.

We set the image of the object as the marker and the text retrieved as the 3d model to be displayed.

There are some steps to follow while determining the targets

1. Selecting the proper target

This step is important because if we don’t select a unique object as a target then the 3d models either appear everywhere or they don’t appear at all

1. Framing the image

The image should be captured only when device is kept parallel to the objects plane. Otherwise there will be perspective distortion

To avoid this we use a frame analysis indicator

1. Start Scanning the Image
2. When the image starts to scan we will stop the image tracker
3. Once the target is created we stop scanning and restart the tracker.

So what we use for this purpose is a predefined Vuforia class ImageTargetBuilder

The start scan method controls the process of frame quality estimation.

We create a function OnFrameQualityChanged that continuously runs

In the background keeping track of the frame quality

We use the value returned by the function if the frame at present can be used as an image target or not.

If it can be used, then we instantiate the ImageTargetTemplate and start BuildNewTarget

This immediately stopes the tracking process of frames

This Function then stores the frame as a data set which will then be continuously tracked thereafter

We store the captured frame as an image target using the ImageTargetBehavior class.

The data set is then activated. And the tracking process is restarted.

So now each frame which is tracked will be referenced against the image target which has been stored.

If the target is matched then the 3d model will be displayed. This follows the basic markered AR steps.