



Software Construction

BESE 5B

Project Proposal

Title: LiSense

Group Members:

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Introduction

Here in Pakistan we don't have a very efficient/systematic way to verify driver license by traffic police. Moreover there are instances that even if license is recognized as illegal, the guilty party is let go without any consequences or charges. There are several illegal organizations that provide unofficial licenses which is mostly used by criminals like extortionists, terrorists, mafia etcetera.

To solve this issue we decompose it to a very basic level. Almost every Pakistani traffic policeman owns a smartphone. Utilizing this opportunity we can develop an application for android platform (iOS too if time permits) which would be easily accessible to every policeman and would be able to install in their devices. Every time they have a suspect, instead of checking their licenses by primitive methods they would just have to scan the licence by the camera in their device. Data would be cross-checked with NADRA database and it would check whether the license is legit or not.



Problem Statement

Pakistan is a 3rd world country which has a huge population. If some people are doing something wrong, it is really difficult for the law enforcers to pinpoint them or catch them. These days a lot of people are using illegal licenses to avoid custom taxes on their illegally imported cars. This issue also gets neglected by the media and government as they treat it as a minor problem although it leads to many illegal activities.

One of the other scenarios is when a person is blacklisted by the state and they use a new license to have their way. This can't be detected manually because a policemen can't process every credential manually at a given time, a system should be developed which would match the person's record and would deny him the opportunity to go for an alternate fake license.

The current system is very inefficient and unreliable as well as very prone to mistakes. Traffic constables check the licenses just by their own personal judgement. There is no computerized or solid method to verify whether a license is legit or illegal. Moreover, a person can be biased while making a decision but an app would just make decisions based on facts and proof.



Solution

As for our approach to this problem, we want to develop an android application. Instead of verifying the licenses manually the constable/policeman will take a picture of the license and it would be stored in an external database. This would save time and money as the app would be free and it will take no time to take a picture with your smartphone. This helps the traffic officers as well as they wouldn't have to check every license manually.

Moreover we plan to apply machine learning techniques by providing the application with some positive and negative data sets, so that it would be able to distinguish between real and fake licenses. Fake licenses would get neglected straightaway.

Furthermore by object detection data like name, picture and address will be cross checked with NADRA database, to check whether such person exists and if he/she does, do the credentials match with each other.

As an additional measure we will be obtaining the current location of the suspect and matching it with their permanent address to find out the distance between the two. If that distance is greater a certain threshold then it would contribute to the possibility that the license is illegal.



Novelty:

Now our approach to make an **“app”** for license verification is something that you don't often hear, there have been system made which can verify a license but to add that functionality to an app is new and it makes it easier to handle and manage. Policemen don't even have to look at the license or put it in any system ,they just have to take a picture and the app will do all the work. Now almost everyone uses a smartphone so it'd be much easier to verify it through an app rather than to install a whole system at every checkpoint.

Secondly, our app will provide machine learning mechanism to make the app auto detect if the license is real or fake. For a fake license it would not need to check any database because there is no need to verify a fake license so this saves time and is more efficient . And if the license is real it would connect to the database to check whether the provided license matches with the one in the database and then after processing it would give the results.



Timeline

1st week: Requirement gathering from all the possible stakeholders.

2st week: Research on how to make the android app and how the licenses are verified right now in the country.

3nd week: Research on how to access the device's camera through the app

4rd week: Research on how to do image processing.

5th week: Try to implement image processing in the app.

6th week: Which machine learning technique to use?

7th week: Keep working on the app and also make a fake database of the licenses for cross checking and validation.

8th week: make some final changes in the app and make it functional.

9th week-end of semester: verify the app against some test cases as soon as it becomes functional.

