NIT HAMIRPUR

DIP PROJECT REPORT

ENTRYMADEEASY

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ACKNOWLEDGEMENT

It gives immense pleasure in bringing out this synopsis of the project entitled

“ENTRY MADE EASY”

Firstly, we would like to thank our teacher and guide professor Dr. Prakash Choudhary who gave us his valuable suggestions and ideas when we were in need of them. He encouraged us to work on this project.

We are also grateful to our college for giving us the opportunity to work with them and providing us the necessary resources for the project

We would also thank to all of them who helped us to complete this project.

We are immensely grateful to all involved in this project as without their inspiration and valuable suggestion it would not have been possible to develop the project within the prescribed time.

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SYNOPSIS

PURPOSE:

The purpose of **ENTRY MADE EASY** is to help in making entries automatically by scanning the identity card of the student and thus save the tedious task of making manual entries while leaving the campus or hostel .

It includes various image processing features like text recognition using OCR, blur detection using Laplace concept and rotating image . Using these we organized the data , fetched from text recognition and thus entries are made using the database.

SCOPE:

Scope of this project is very broad in terms of orthodox system of making manual entries in while leaving college or hostel. Few of them are:

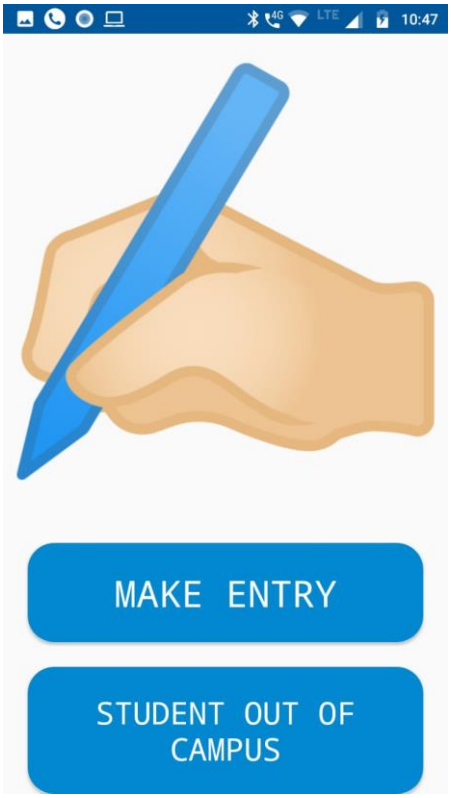
- Users are just a scan away from making the entry.
- The ones who have not entered the hostel on time, their record can be maintained easily and properly.

FEATURES:

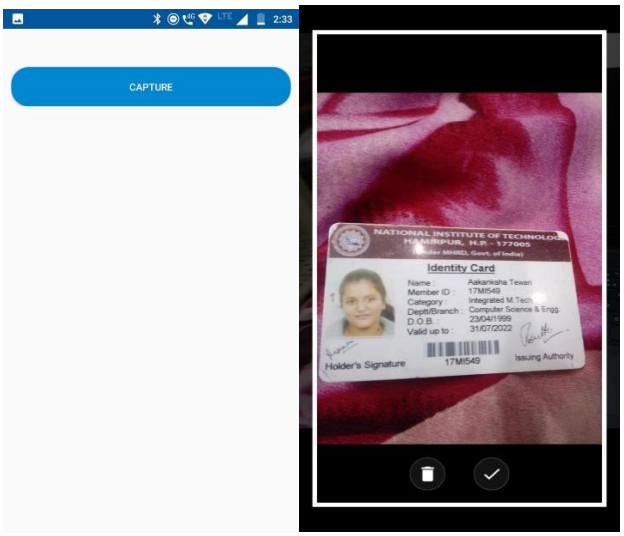
- Secure, reliable andaccurate
- Easy to use
- Time saving

OVERVIEW:

On entering the app, we will see the following screen as shown having options as make entry and check students out of campus:



On clicking on make entry, We'll be redirected to the following page:



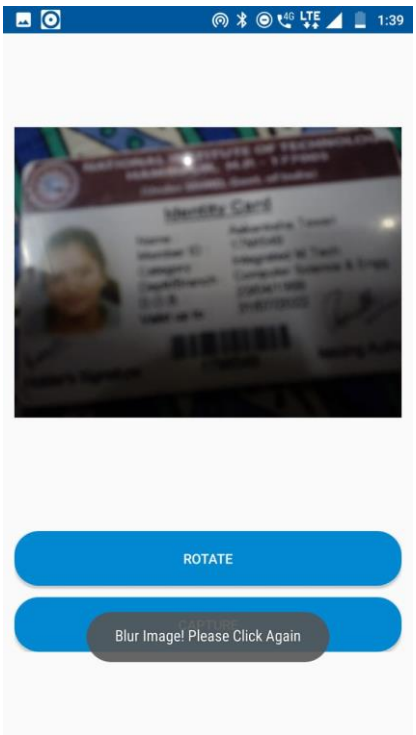
Click on capture and upload the clicked picture. First of all it will ask for user permissions, and then will proceed further.

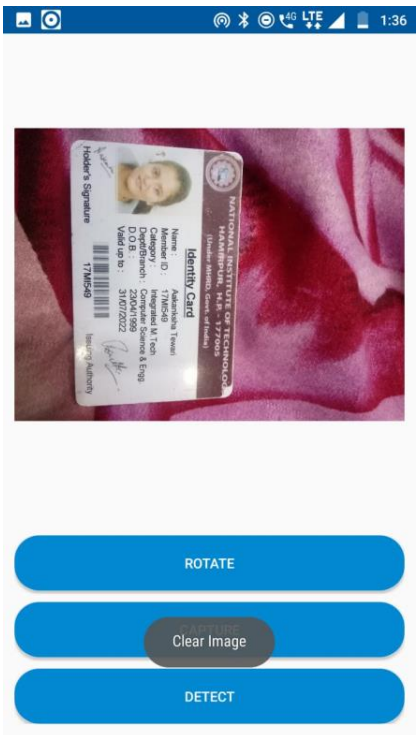
This project can majorly be divided into 3 parts:

1. Blur Detection
2. Text Recognition
3. Show entries

Blur Detection:

In this part if the image is blurred or clear, it is detected and the user is informed to click the picture again until the clear image is obtained. If the image is blurred, `Detect` option will be disappeared.

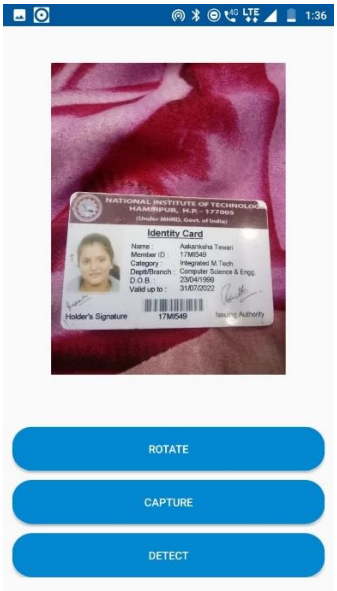




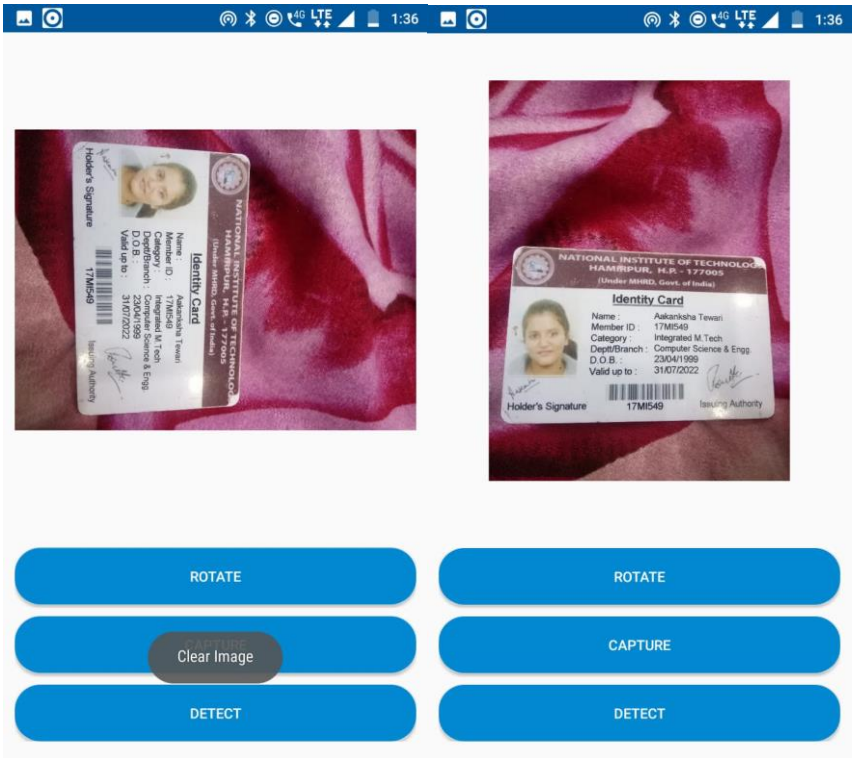
Blurred Image **Clear Image**

FEATURES:

After blur detection is performed, the image can undergo the following features:- **Rotate** , **Capture** and **Detect**. If there is no text detected, then it will show popup that no text is detected due to which user has to again click the picture, else user can select features and proceed further.



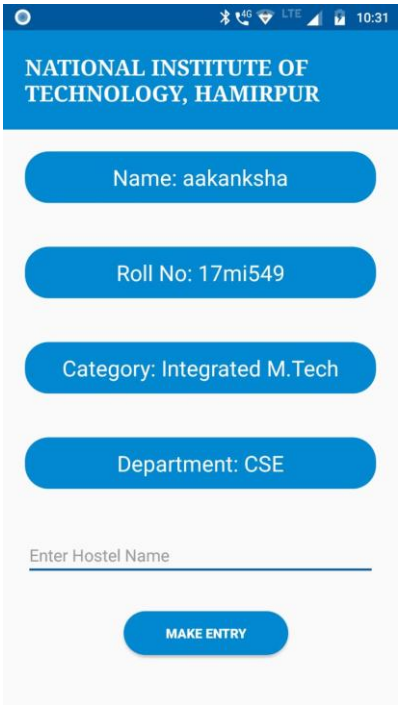
1. Rotate: If the image isn't clicked properly and needed to be rotated click on `Rotate` button to rotate the image.



Before Rotation **After Rotation**

2. Capture: In case of blurred image, `Capture` is used to reclick the clear image.

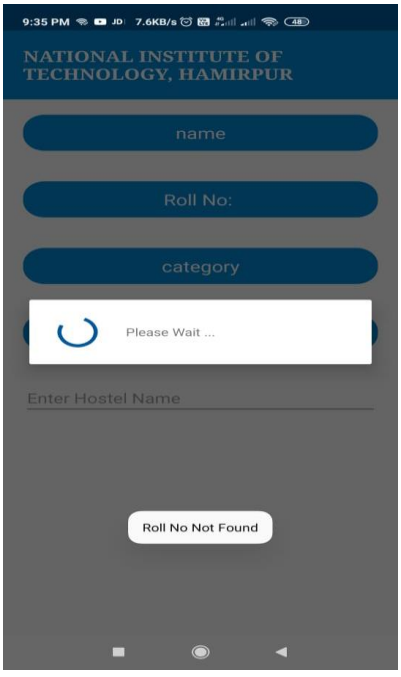
3. **Detect:** This button helps us to detect the information printed on the card using text recognition.



The Roll Number is fetched using text recognition, then data regarding Name,Category and Department is fetched from database and Hostel Name is entered manually.These all details are made to display on the entry list.

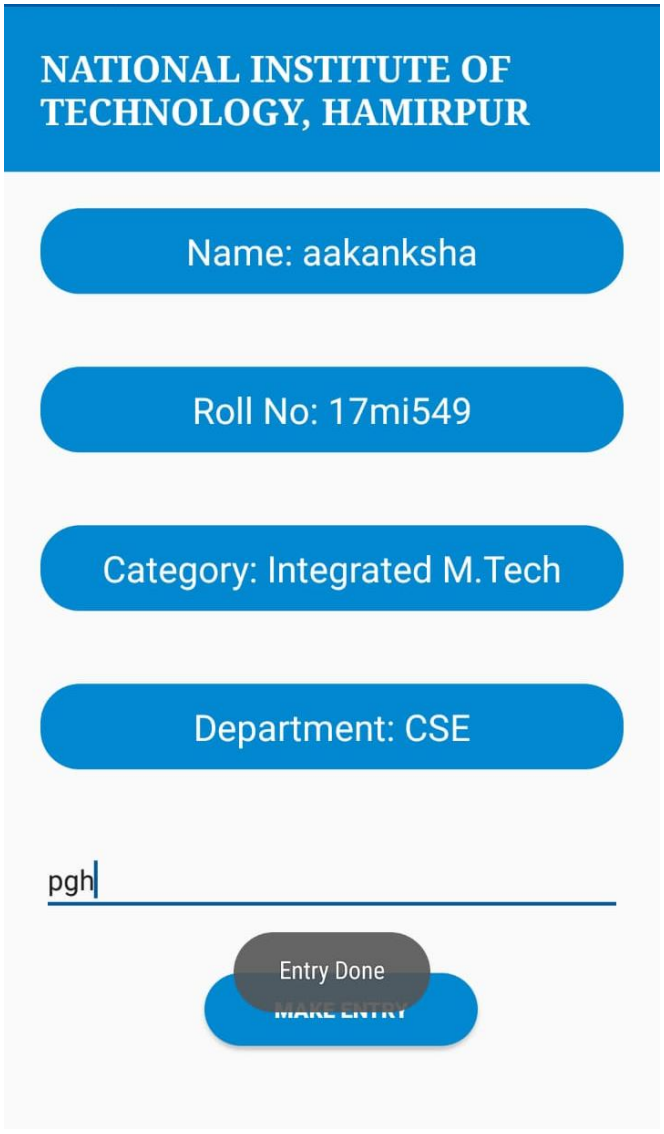
The data received from image is huge and also not properly arranged. Hence, first of all, we took the list of blocks of data, split them accordingly to get individual elements from the blocks, and then made an array of elements from them.
After the array is made, we search for roll No. among all the elements and then use that to search for records in the database.

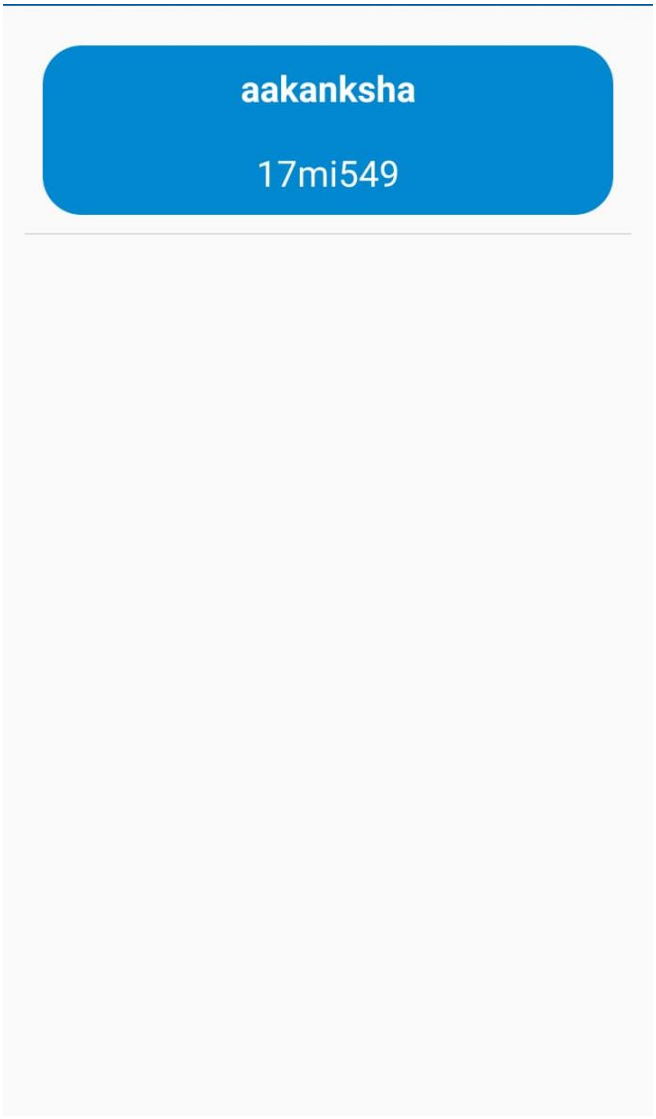
If the data regarding specific Roll Number isn't found in the database, following error is shown:



After fetching data from database, it asks for user hostel name, and then after clicking on make entry, the status flag of user is changed and entry is made , which can be seen in Students out of campus.

The students whose status flag is set active will be out of campus and hence can be shown.





TECHNOLOGY USED

1. **JAVA FOR ANDROID**-

The platform for app development in Android is Java. This means that you use the Java library and code the applications in Java, C, and C++ programming language. Android applications are usually developed in the Java language using the Android Software Development Kit.

It's designed to be platform independent and secure, using virtual machines and is object-oriented Android relies heavily on these Java fundamentals. The Android SDK includes many standard Java libraries (data structure libraries, math libraries, graphics libraries, networking libraries and everything else)

2. FIREBASE-

We have used Firebase Database for storing information about student and fetch from the Database. Firebase Realtime Database updates/inserts/deletes the information at realtime without any delay.

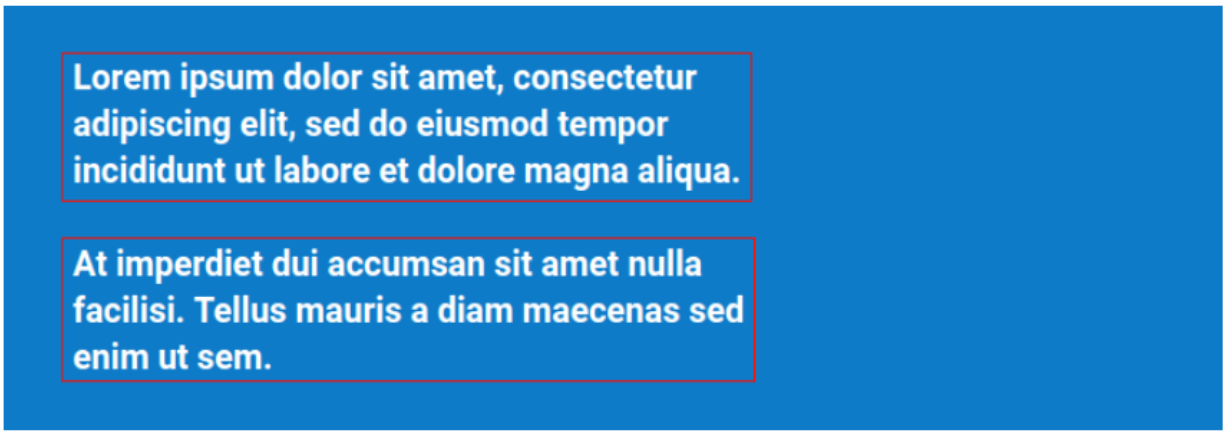
We have also used Firebase ML Vision Api for text recognition of any image.

It works in the following way:

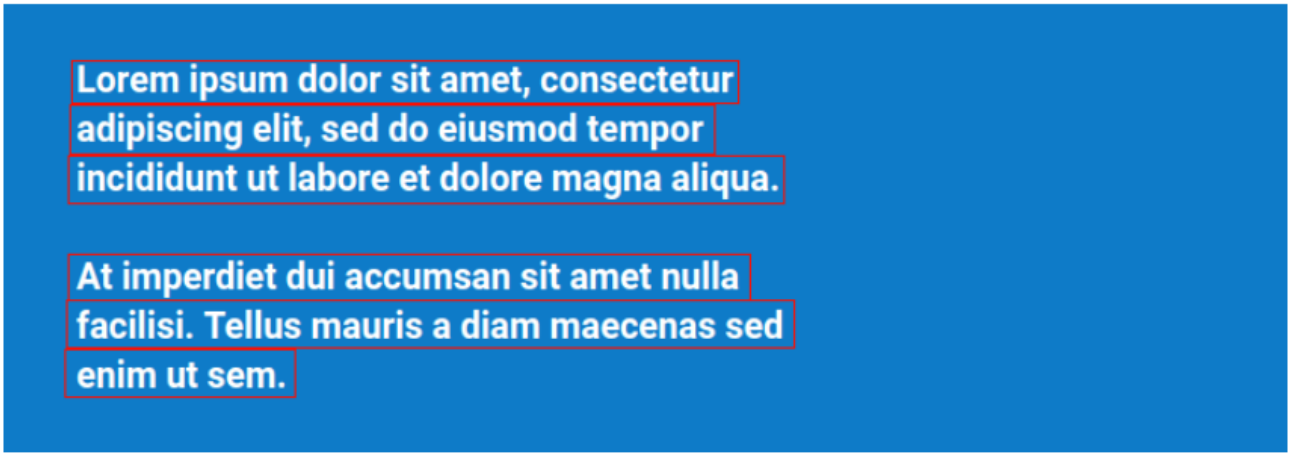
With the Cloud-based API, you can also extract text from pictures of documents, which you can use to increase accessibility or translate documents. Apps can even keep track of real-world objects, such as by reading the numbers on trains.

The ML Kit's Text Recognizer segments text into blocks, lines, and elements -:

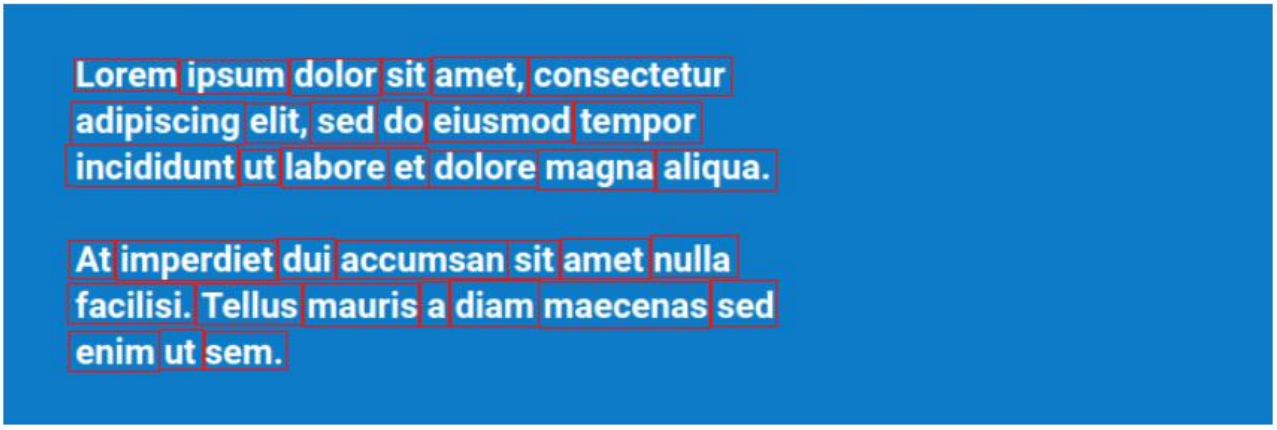
1. Block is a contiguous set of text lines, such as a paragraph or column.
2. Line is a contiguous set of words on the same vertical axis.
3. Element is a contiguous set of alphanumeric characters on the same vertical axis.



Blocks



Lines



Elements

3. BLUR DETECTION :

The first method to consider would be computing the Fast Fourier Transform of the image and then examining the distribution of low and high frequencies —

- If there are a low amount of high frequencies, then the image can be considered blurry. However, defining what is a low number of high frequencies and what is a high number of high frequencies can be quite problematic, often leading to sub-par results. After a quick research , we came to the implementation that we were looking for: variation of the Laplacian

- It was important to note that threshold was a critical parameter to tune correctly and we'll often need to tune it on a per-dataset basis. Too small of a value, and we'll accidentally mark images as blurry when they are not. With too large of a threshold, you'll mark images as non-blurry when in fact they are.

EXISTING SYSTEM

The whole process of entry making is based on the tedious paper work system and were done manually till date. Making entries and checking which students have entered the campus at particular time used to take time when the work was done manually on paper pen.

DISADVANTAGES OF CURRENT SYSTEM

- The current system is very timeconsuming.
- It is very difficult to analyze the unentered students in the campus or hostel at specific timings manually.
- The chances of error are more in current system as compared to proposed system.

  Result processing takes more time as it is donemanually

CHARACTERISTIC OF THE PROPOSED SYSTEM

The ENTRY MADE EASY created has following features

- In comparison to the present system the proposed system will be less time consuming and is moreefficient.
- Analysis will be very easy in proposed system as it isautomated
- Result will be very precise and accurate and will be declared in very short span of time because entries are done by the simulatoritself.
- The proposed system is secure as no chances of error are there.

CONCLUSION

Entry Made Easy is an app to make entry system fast and less hectic. Using Firebase and various algorithms for blur detection, we were able to find blur image and recognize text from image. The information gathered from image is vast and we have organized the data into elements of array from where we fetched the roll no and hence data.

The whole project was full of knowledge and we learnt many concepts as well. The future aspects of this project is to be able to handle large images as well and add image recosgnition to make this system more secure. The main aim of project is to implement concepts of Image Processing in Android and also contribute towards our institution.