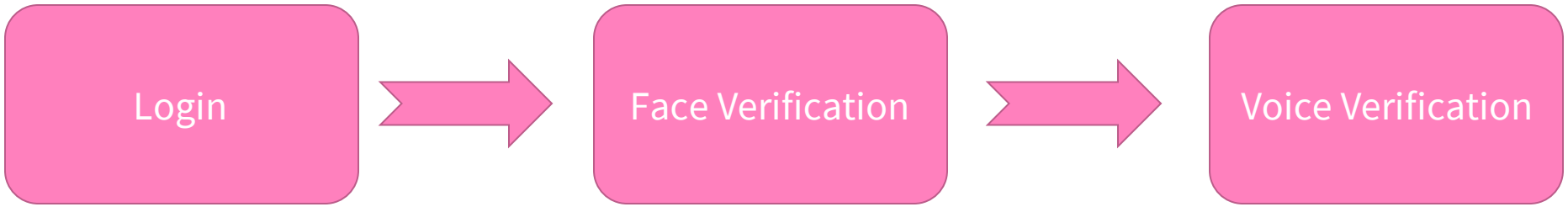
DEVELOPMENT OF MLESA MOBILE APPLICATION

FACE DATA
AND
VOICE DATA

- MADDURU SAI CHANDRA NIKHIL

INTRODUCTION

- The Android Application is built to verify an user using a custom design of both Face Data and Voice Data in such a way so that No other user can use the Application, without his/her knowledge.
- The Application has 3-way Verifcation of an user that is, Basic Login using valid email and password, next is Face Verification and then Voice Verification.



TECHNOLOGY STACK

Python

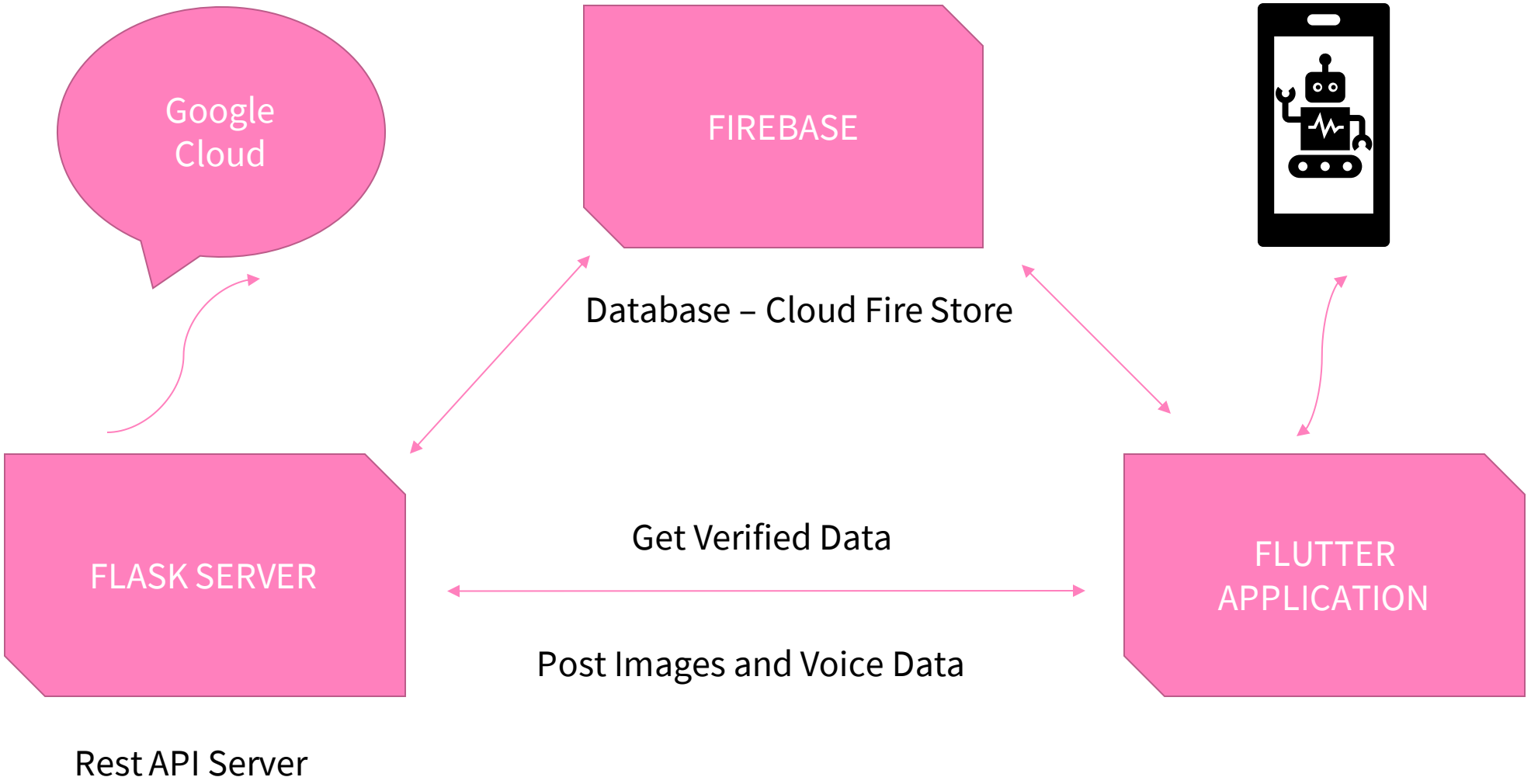
Dart

Flutter - Dart

Google Firebase

Flask - Python

A R C H I T E C T U R E


Google Cloud
FIREBASE
Database – Cloud Fire Store
FLASK SERVER
Get Verified Data
Post Images and Voice Data
FLUTTER APPLICATION
Rest API Server

FACE VERIFICATION

HOW IT WORKS!

WORKING OF FACE VERIFICATION

- Step- 1: An User Needs to Upload Three kinds of Face Data that is – Left Imprint of the face, Right Imprint of the face and Front Imprint of the face.
- Step -2: The Data after uploaded gets Stored in the local file system with respected user directory created.
- Step-3:In the phase of verification, Only front imprint is taken into consideration and it is calculated with a unique function where the function compares all three imprints presence in the photo as a photo ID is only front imprint it gets eliminated.
- Note: the Data is Base64 encoded to increase efficiency.

How It Works – Technical Details

- Dart : Encoding the Image data and sending to the server via post request.
- Flask Server : Receives The Encoded Image data Decodes the data and writes into a file. Uploading - creates a directory and stores the imprints. Verification – Verifies the image data with a function which uses state of the art Python Face verification Plugin.
- Python : Deep face Plugin – It is a hybrid face recognition framework wrapping **state-of-the-art** models: VGG-Face, Google FaceNet, OpenFace, Facebook DeepFace, DeepID and Dlib. The library is mainly based on keras and TensorFlow.
- Reference : DeepFace

VOICE VERIFICATION

HOW IT WORKS!

WORKING OF VOICE VERIFICATION

Step-1:An User Needs to Upload his voice Imprint which contains an unique Activation word and the Timer is under 3 seconds. On uploading the data is stored under the same directory of the user.

Step-2: Similarly when Verifying the user needs to lent the Voice Imprint similar to the uploaded one and it is sent to the Flask server for the verification.

Step-3: On receiving the result from the flask server ,the user can be verified using the threshold decided and can be navigated to the application.

Note: Similary ,the Voice imprint is also base64 encoded.

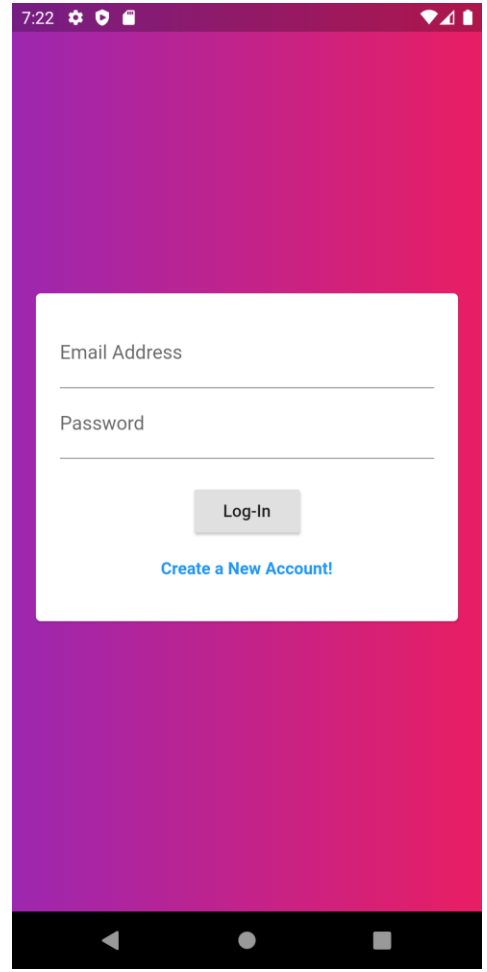
How it Works – Technical Details

- Dart : Encoding the Voice data and sending to the server via post request.
- Flask Server : Receives The Encoded Voice data Decodes the data and writes into a file. Uploading - stores the imprints in the User directory. Verification – Verifies the Voice data with a function which uses the below mentioned Python Plugin.
- Python: Speaker-verification-toolkit is a simple and has Tools for speaker Verification.
- Reference: Speaker-verification-toolkit

USER INTERFACE

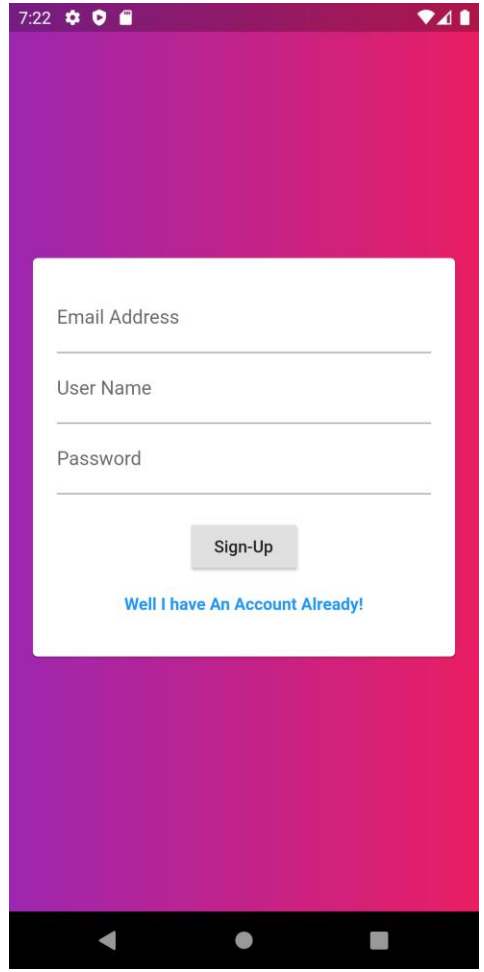
AUTHENTICATION

SIGN IN FORM



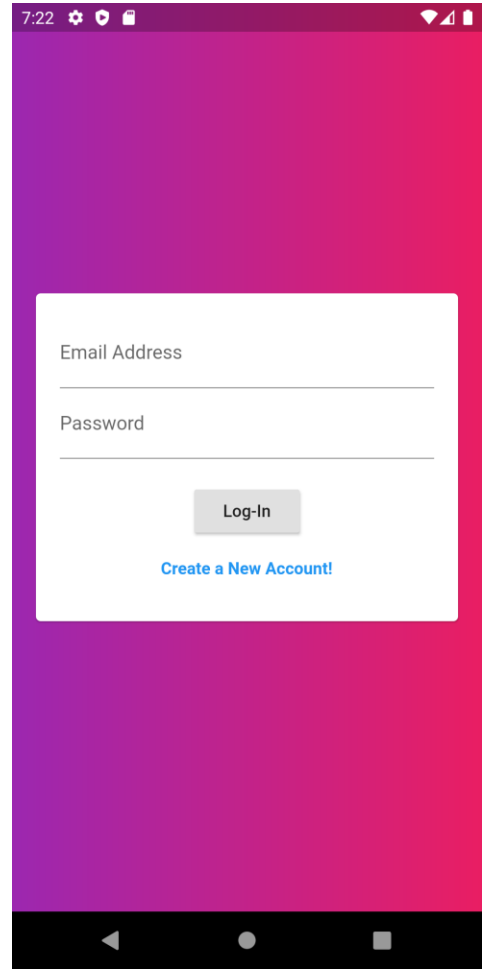
A U T H E N T I C A T I O N

SIGN UP FORM



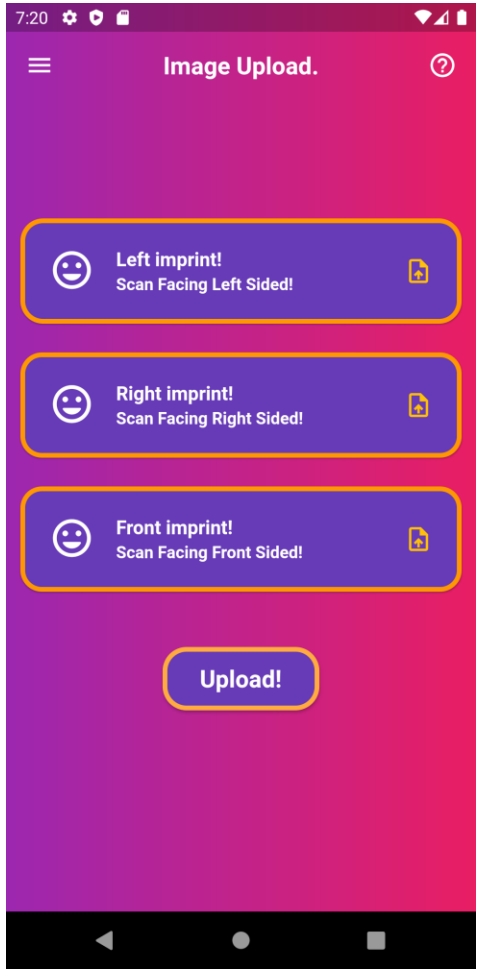
AUTHENTICATION

SIGN IN FORM



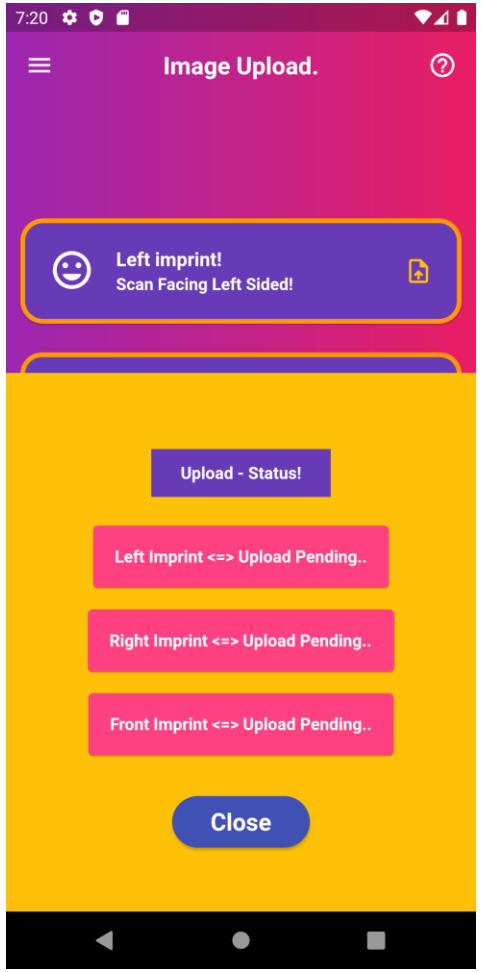
FACE VERIFICATION

FACE IMPRINTS UPLOAD



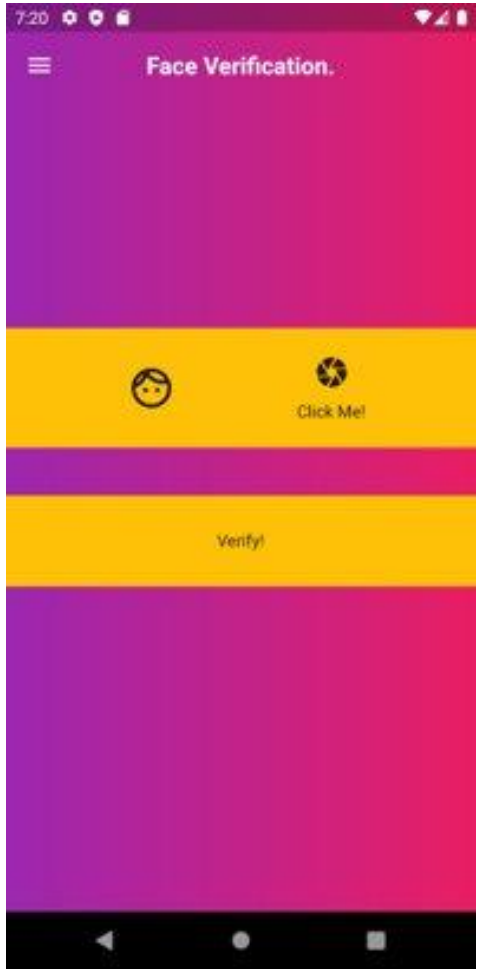
FACE VERIFICATION

UPLOAD STATUS

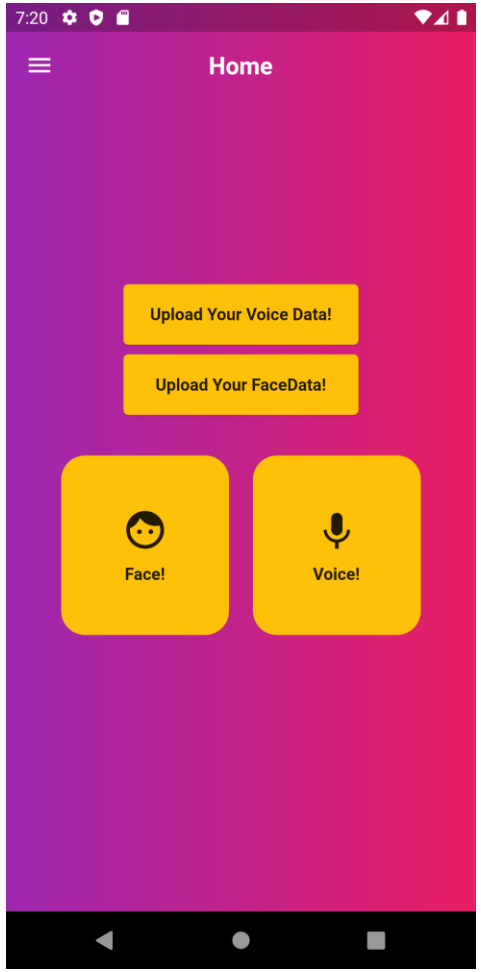


FACE VERIFICATION

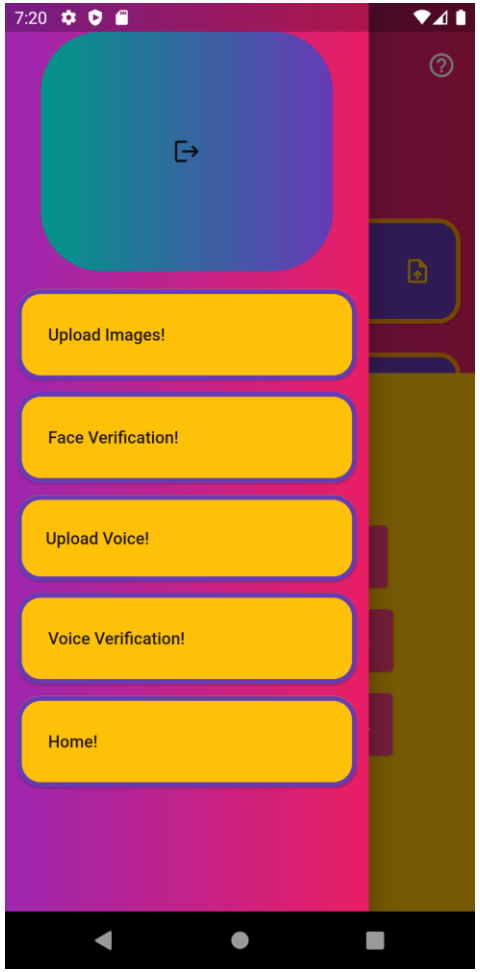
FACE IMPRINTS VERIFICATION



HOMESCREEN

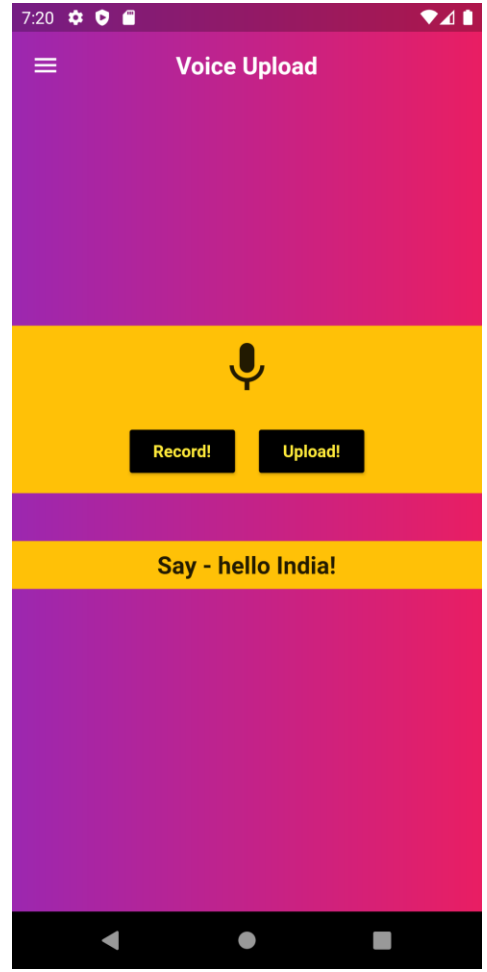

7:20
Home
Upload Your Voice Data!
Upload Your FaceData!
Face!
Voice!

S I D E D R A W E R


7:20
Upload Images!
Face Verification!
Upload Voice!
Voice Verification!
Home!

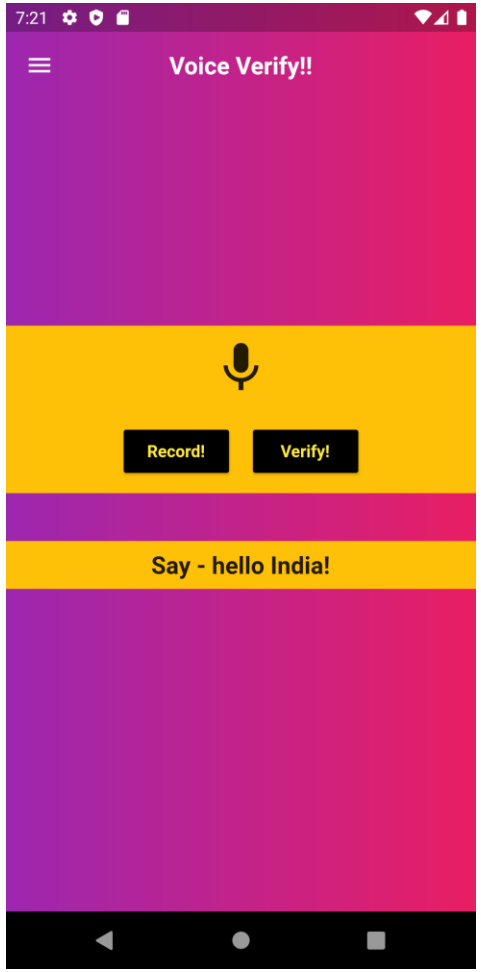
VOICE VERIFICATION

VOICE IMPRINTS UPLOAD



VOICE VERIFICATION

VOICE IMPRINTS VERIFICATION



Next Phase

- Deploying to the Cloud.
- Real Time Deploying the Server and Testing the modules on the various levels.
- Redesigning User Interface on feedback.
- Can develop UBA based on the content of the application.
- Can develop a Trigger system hidden in the application using certain gestures for identification.

THANK YOU

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