

Mobile App For Text Recognition

1. Introduction

This is a mobile app to capture photo from camera and recognize text (English characters only) in the captured photo. The captured text is then saved into public cloud storage.

2. Technology Stack

Frontend: Java in Android Studio

Backend: NodeJs and Google Cloud (functions, Pub/Sub, Storage, Vision API)

Text Recognition: Firebase ML Kit for Android

3. Source Codes Repository

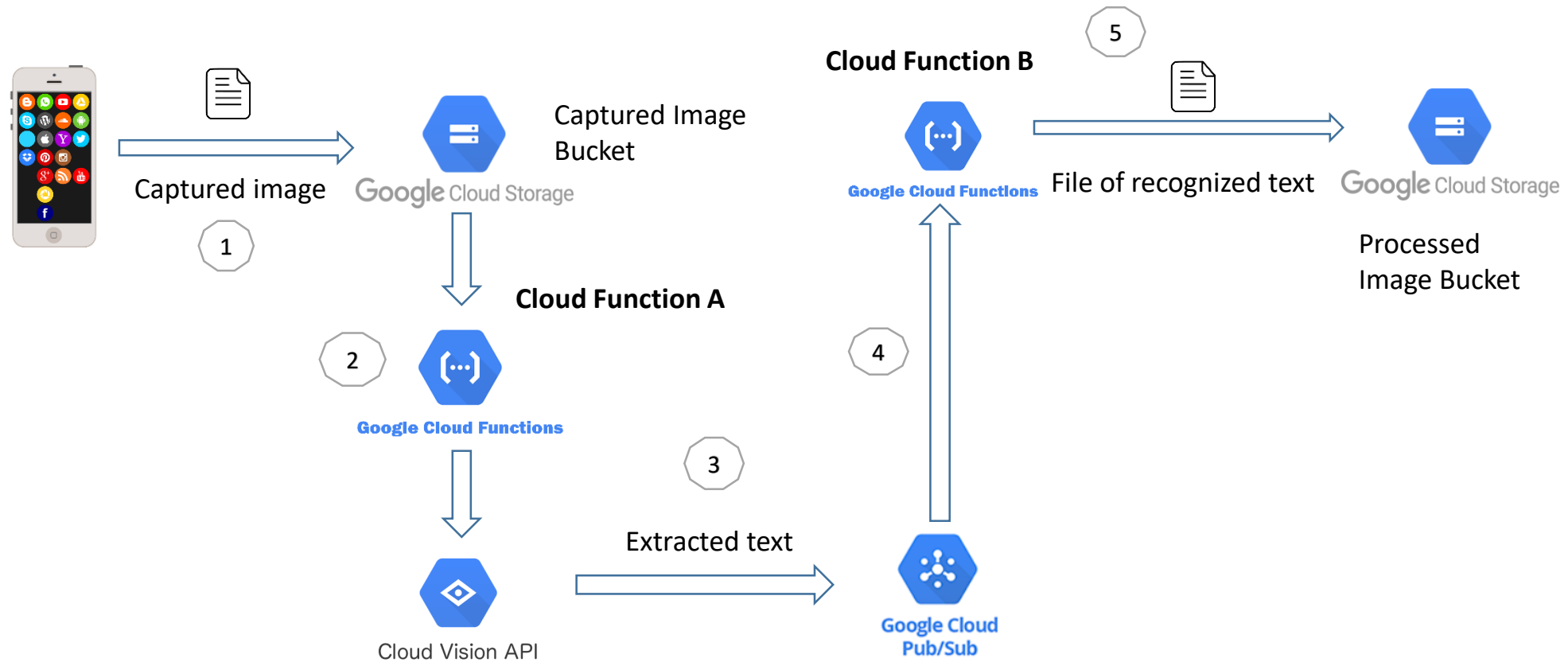
Frontend is <https://github.com/samhkwest/mycrapp>

Backend is <https://github.com/samhkwest/ocr>

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4. Data Flow

The data flow of this text recognition platform is illustrated as below:



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4. Data Flow (Cont'd)

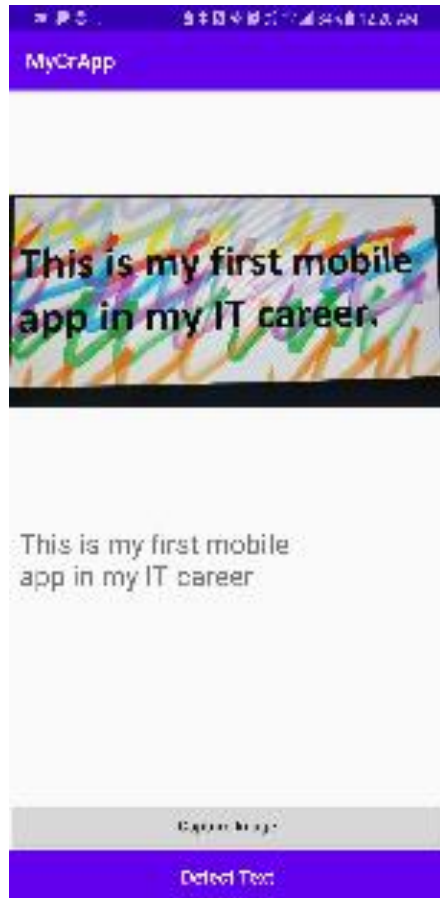
The data flow consists of following steps:

- 1) The mobile app sends a image file captured from camera to Captured Image Bucket.
- 2) The Cloud Function A is triggered to call the Vision API to extract the text.
- 3) The extracted text is sent to a result.
- 4) The Cloud Function B saves the extracted text from the result queue to a text file.
- 5) The result file is sent to the Processed Image Bucket.

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5. Frontend Design

The UI of the mobile app is as below:

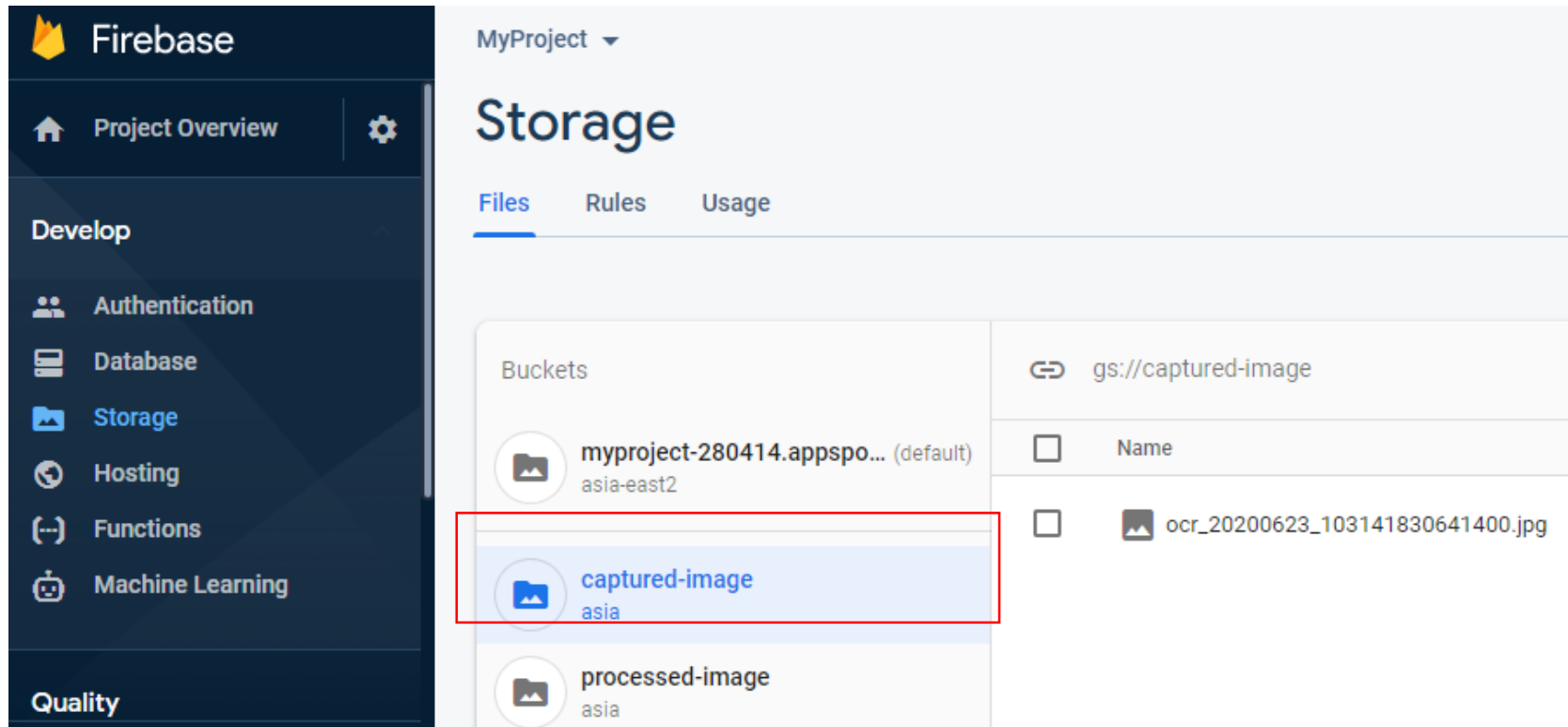


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5. Backend Design

The Backend is built by NodeJs and Google Cloud Services (Cloud Storage (Bucket), Pub/Sub, Vision API).

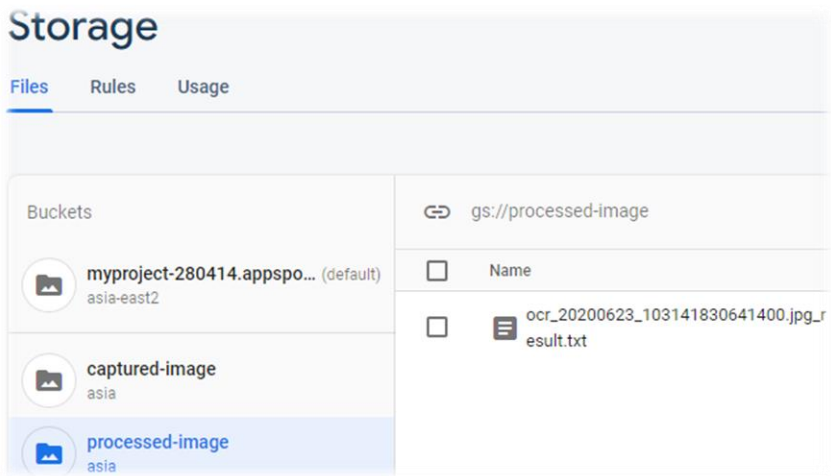
a) Bucket for captured image – this is a bucket which stores captured image from camera:



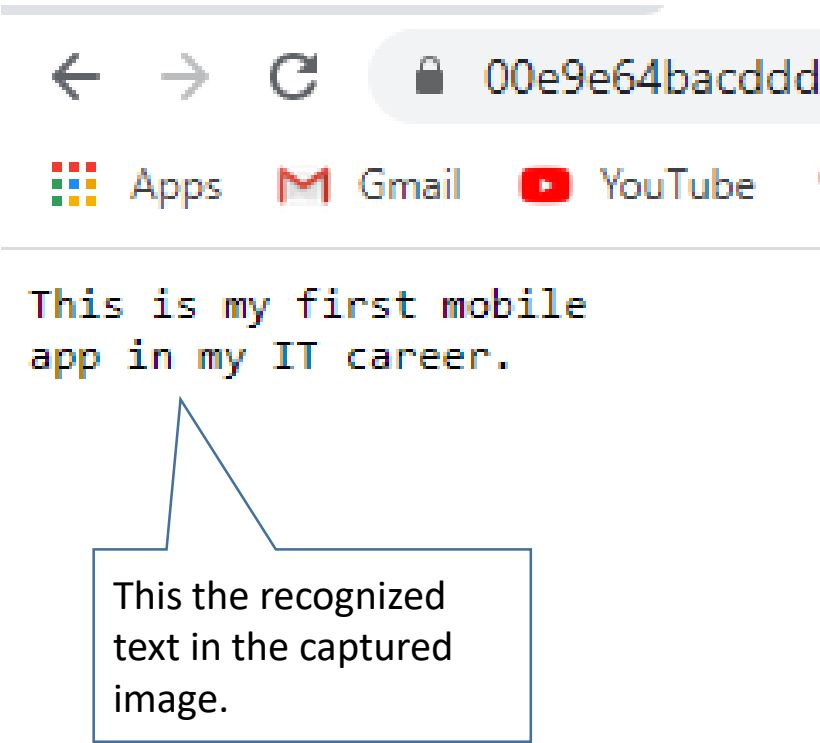
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5. Backend Design (Cont'd)

b) Bucket for result file - this is a storage bucket which stores the text files with recognized text in the captured image:



Open a result file in Google Cloud Console





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5. Backend Design (Cont'd)

c) Cloud Functions

- Function ocr-extract: After received uploaded picture from camera, it is automatically triggered to extract text characters from the picture.
- Function ocr-save: The extract characters are then saved as a text file and is stored into the result bucket.

Functions	
Dashboard	Health Logs Usage
Function	Trigger
ocr-extract	 <code>google.storage.object.finalize</code> captured-image
ocr-save	 <code>google.pubsub.topic.publish</code> recognized-text