Emotion Album

https://github.com/SuminHan/MemoryAlbum

CS409
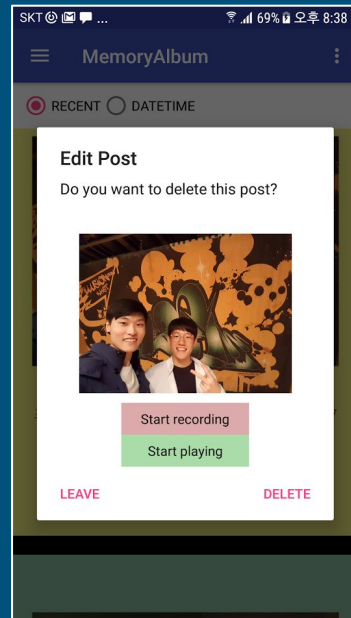Sumin Han

Introduction

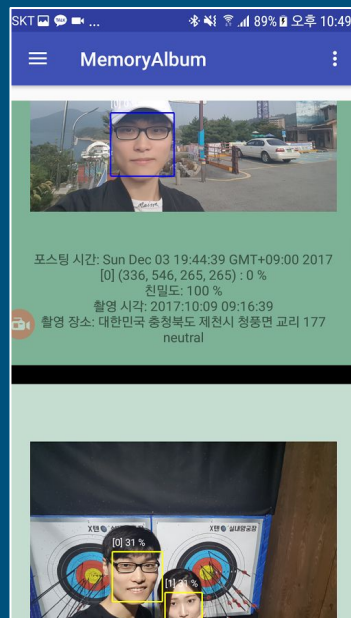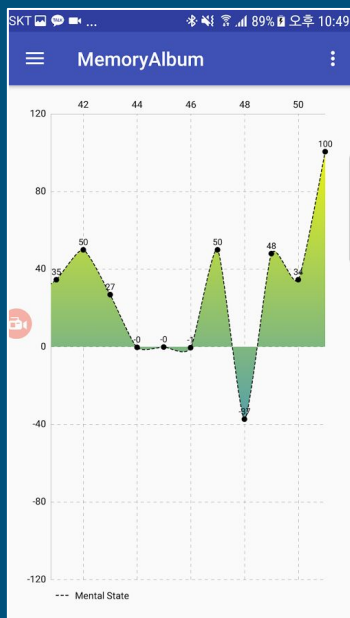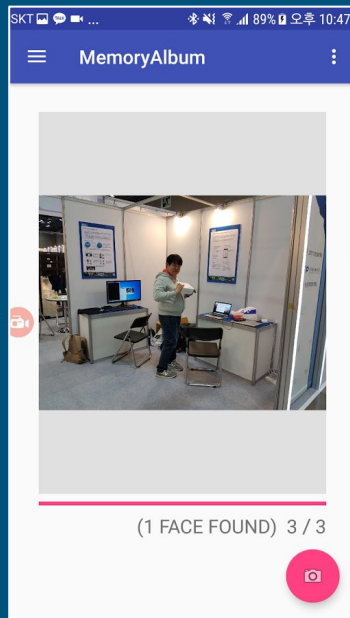시간이 지나고 남는건 사진 뿐...

효율적으로 추억을 정리해주는 앱(App)은 없을까?

- MS Emotion API
- Categorize emotion
- Visualize using Graph
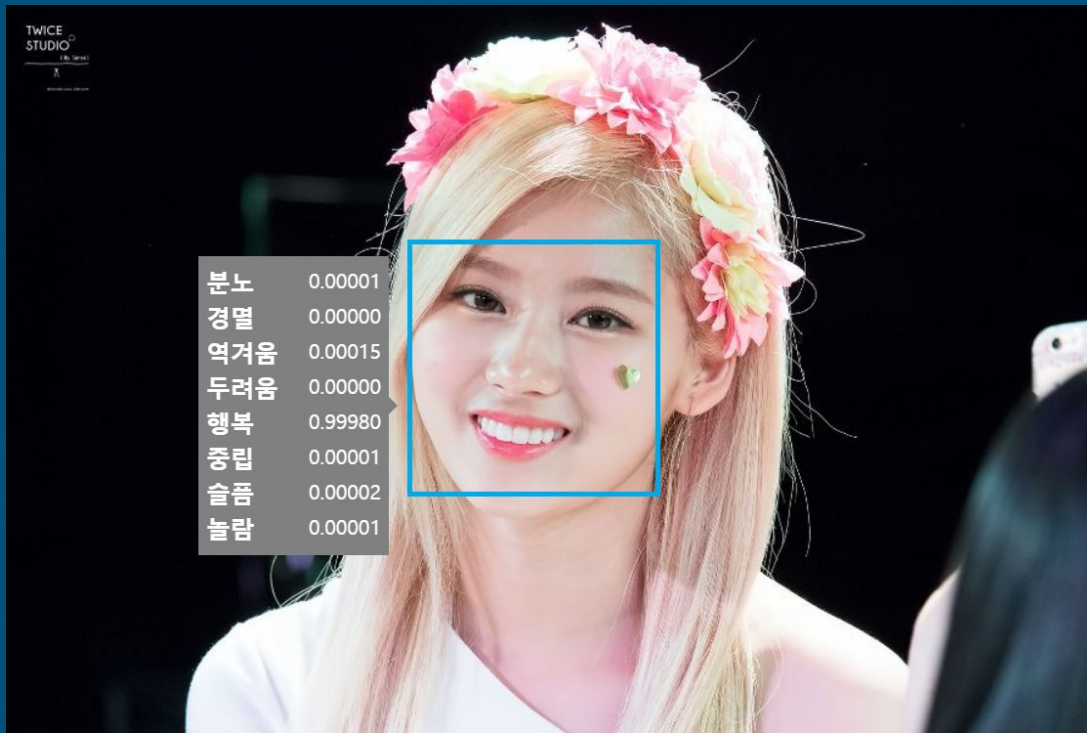
Features

Categorization

MS API: Original 8 categories → Convert into 5 categories

- Anger, Contempt, Disgust   → Anger
- Fear, Sadness   → Sadness
- Neutral   → Neutral
- Happiness   → Happiness
- Surprise   → Surprise

Then, **normalize** the vector.

Mean value

- Emotion vector v_i with *5th* dimension, $|v\_i| = 1$
- If there's n faces, there are $v\_1, v\_2, \ldots v\_n$ emotion vectors.
- μ = *mean(v_1, v_2, … v_n)*
- Similarity:

$$sim(A, B) = \cos(\theta) = \frac{A \cdot B}{\|A\|\|B\|}$$
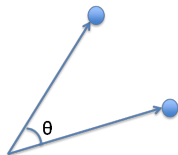
- Familiarity = (Deviation) $\sqrt{\sum \frac{|\mu - v_i|^2}{n}}$

- Color ⇒ RGB and **interpolate** value using familiarity.

- anger
- fear
- neutral
- happiness
- surprise

Scala value

```
float val = (float)(im.FACE_ANGER * -100
            + im.FACE_FEAR * -50
            + im.FACE_NEUTRAL * 0
            + im.FACE_HAPPINESS * 50
            + im.FACE_SURPRISE * 100);
```
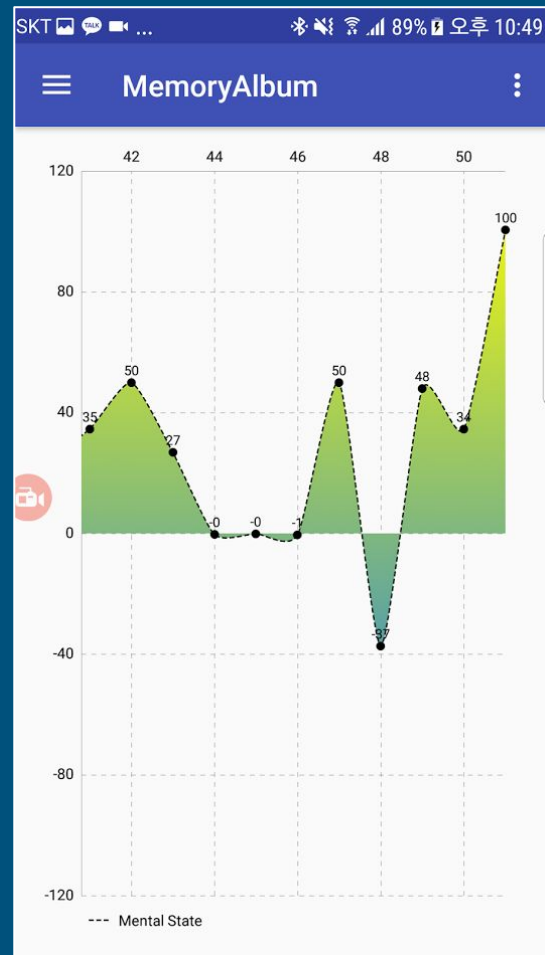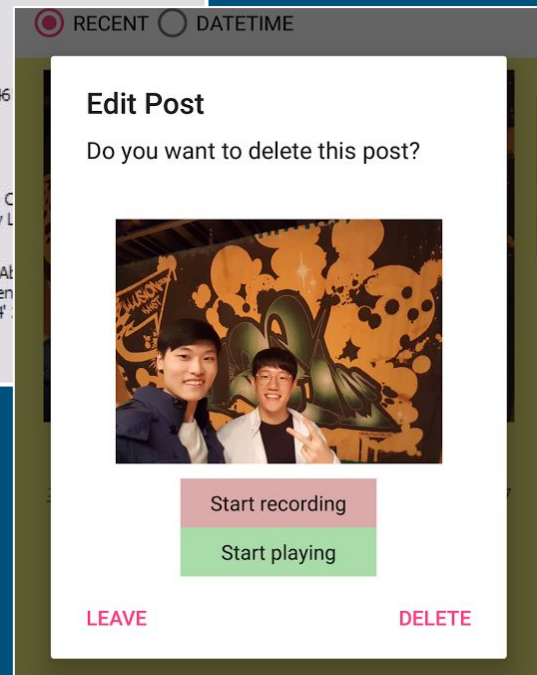
GeoCode & Recording

- Exif Data
  - latitude, longitude
    - → Convert to real address (Geocoder)
  - datetime → shooting time (sorting)
- Recording
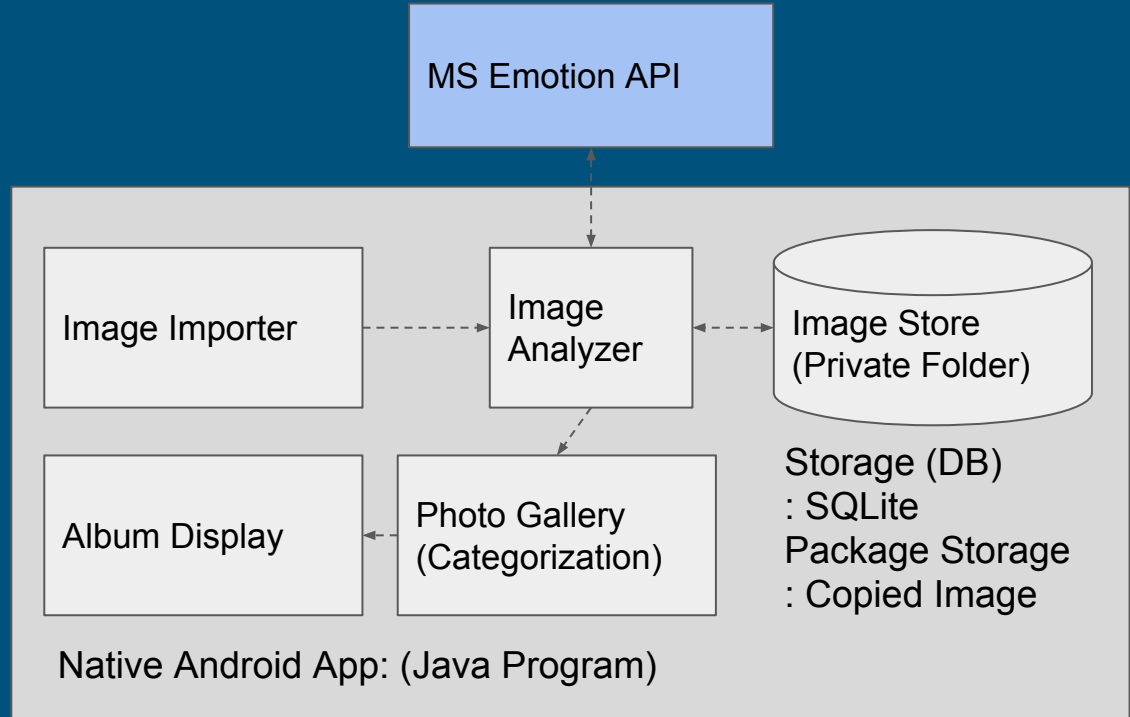 - Record message to each post (instead of typing)

Camera Maker:	Canon
Camera Model:	Canon EOS 350D DIGITAL
Image Date:	2006-09-06 11:15:33 +0200
Focal Length:	24.0mm
Aperture:	f/10.0
Exposure Time:	0.0040 s (1/250)
ISO equiv:	200
Exposure Bias:	none
Metering Mode:	Partial
Exposure:	program (Auto)
White Balance:	Auto
Flash Fired:	No
Color Space:	sRGB
GPS Coordinate:	49° 11' 47.20" N, 10° 46
Photographer:	Christian Eyrich
City:	Abenberg
Country:	Germany
Copyright:	licenced under Creative C ShareAlike 2.0 Germany L
Caption:	Schottenturm auf Burg Ab aufgenommen von Süden Aufnahmepunkt: 49° 14'

Copy

RECENT DATETIME

Edit Post

Do you want to delete this post?

Start recording

Start playing

LEAVE   DELETE

System Architecture

- CRUD sqlite
- Upload
  → Detect Face
  → Analyze mean value
  → get Exif info
  → Copy image in
  package storage

MS Emotion API

Image Importer

Image Analyzer

Image Store
(Private Folder)

Album Display

Photo Gallery
(Categorization)

Storage (DB)
: SQLite
Package Storage
: Copied Image

Native Android App: (Java Program)

Schedule

- Firebase… web image storage
- Face detection
- MP Android Chart
- Menu design
- Exif data, list view
- Add more views
- Album

Feedback

- Happiness, Neutral은 잘나오는데 Anger, Sadness는 잘 안나옴. 거의 Neutral에서 그 정도의 차이가 나는 정도.
- 카메라를 많이 안찍는 사람에게는 활용도 낮음 (인스타그램 비사용자 등)
- 단체사진에서 Neutral, Happiness 이외의 표정은 찾기 드묾
- 개인 소장용 앨범, 다이어리 측면으로 접근하는 것이 더 전망있어보임

Future work

- Auto filter
- Photo Sticker
- Private diary, security↑
- Voice emotion detection