Sentiment Analysis Camera Application

The Application integrates emotion recognition, returning the confidence across a set of emotions for each face in the image

such as anger, contempt, disgust, fear, happiness, neutral, sadness, and surprise.

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This application detects one human face in an image and gets back face rectangles for where in the image the face is, along with some attributes which contain machine learning-based predictions of facial features. Algorithm in application utilizes some of sentiment data and returns meaningful analysis results.

# Introduction

Sentiment Analysis Camera application provides users 4 basic functions: (1) analyze human emotion when uploading face photo, (2) record result on calendar day by day, (3) create a network for application users, (4) AI chat service which offers words of sympathy depending on user’s mood.

# Service concept & Proposal

This application focuses on an image and analyze human’s emotion on it. The image, which is a photo of one’s face, sometimes could be more honest and raw data offered from human. Texts can be fabricated as much as he/she wants, on the other hands, face is hardly concealed. Most people write diary to record their mood of the day. However, we suggest NEW idea to record feelings in much simple and fabrication-free way. We aim for everyone’s facial expression at every moment.



In the application, main source is machine learning technology. We highly use Microsoft Azure Face API to detect facial features. 27 types of data are extracted from one-time detection. They are processed and expanded to new service.

# Preview of Main Service

## Analyze human emotion in the image

## Record daily results on app calendar

## Social network platform in application

## AI sympathy chat

# Development Environment

The idea was from Software Engineering Project in Hanyang University. Project group is composed of Y.H. Lee, David Jeon, J.W. Hur, and J.Y. Park. Every team member participate in planning, designing, and developing. Also, we manage overall development process in github public repository.

*A. Framework*

* Django Rest Framework
* Python: 3.7
* Django: 2.1.2
* DjangoRestFramework: 3.10.2
* React Native
* React Native: 0.59.8
* React: ^16.8.3
* Expo: ^35.0.0
* Android Studio
* Android Studio:
* …

*B. API*

* Microsoft Azure Face API
* Firebase Authorization API
* …

*C. Library*

* Sendbird
* …

*D. Repository*

* Github

# Requirements

1. Sign in and Sign up

* Account linking with Google, Naver, Kakao
* (additional) Sign in through face identification
* (additional) Face verification scanning and matching previous data in databas

1. Camera Activation

* Connect to built-in camera
* Access to mobile photo album

1. Photo Analysis

* Detect human face
* Machine learning-based predictions of facial features
* Extract 27 types of data
* Grouping data: emotion(anger, contempt, disgust, fear, happiness, neutral, sadness, and surprise), appearance(glasses, beard, hair), etc.
* Return analysis results

1. Data Utilization Service

* Emotion polygon graph (day / week / month)
* Emotion stamp calendar
* Trace back to the emotion: to find reasons for emotion of the day and record it in several options(physical / weather / personal / social environment / etc)
* …

1. Photo saving
2. Control Database

* Create user’s own database
* Store analysis result on user’s database
* Manage several analysis results of one user
* Connect to other application service: calendar, graph, etc.

1. Network Service

* Anonymity messenger: one to one

1. AI Sympathy chat
2. …

# Service details

*A. Service Flow Map*

*…*

*B. Wireframe*

*…*

*C. Functional Specification*

*…(table)*

# Design

*A. Architecture design*

*…*

*B. User Interface*

*…(ui image)*

# Application Implementation

*A. Source code*

*…*

*B. Testing*

*…*

*C. Use cases*

*…*

# Expectancy Effects

## Application Distribution

* Amazon RDS for MySQL

## Customer Values

1. Qualitative Values

…

1. Quantitative Values

…

*C. Market Research*

…

# Role Allocation

|  |  |  |  |
| --- | --- | --- | --- |
| 1 | **Roles** | **Name** | **Task description** |
| User | J.W. | QA, market searching |
| Customer |  |  |
| SW developer 1 | David | programming |
| SW developer 2 | Y.H. | programming |
| Development manager | J.Y. | planning, designing |
| 2 | **Roles** | **Name** | **Task description** |
| User |  |  |
| Customer |  |  |
| SW developer |  |  |
| Development manager |  |  |
| 3 | **Roles** | **Name** | **Task description** |
| User |  |  |
| Customer |  |  |
| SW developer |  |  |
| Development manager |  |  |

\*Every role is variable according to situation.