



University College Dublin
Ireland's Global University

Find My True Friend

An Emotion-Tracking Video Calling App

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November 4, 2024

Overview

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2. Analysis of related/similar apps

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5. Future Work Plan

App Idea Description

Find My True Friend – App Overview

- **Introduction:**

- *Find My True Friend* is an innovative app that tracks and analyzes emotions during video calls with friends.
- Discover who brings out your happiest moments and find your true friends through mood analysis.

- **Core Features:**

- **Video Call-Based Emotion Detection:**

- Real-time detection of emotions such as "smiling" or "angry" during video calls.

- **Mood Tracking and Analysis:**

- Longitudinal (daily trends) and lateral (emotional response with different friends) mood insights.

Analysis of related/similar apps

Feature Comparison

App	Video Chat	Emotion Detection	Emotion Report
My App	✓	✓	✓
Facebook	✓		
Mood Diary App		✓	

- **Innovation 1:** My app not only supports video calls but also detects users' emotions in real-time during calls (e.g., "happy," "neutral," "angry").
- **Innovation 2:** By tracking emotional fluctuations, users can analyze mood changes during interactions with different friends, helping them discover who brings more happiness.
- **Innovation 3:** Based on this data, the app generates an emotion report, providing users with deep insights into their emotional trends, fulfilling an unmet need in current applications.

Usage of Open Source Resources and Custom Development

Open Source Projects Used

Project Name	Description	Source code link
Android-VideoChat-master	Android application implementing video chat with WebRTC.	LINK(click)
SkyRTC	Node.js-based real-time communication project with WebRTC and Socket.io, supporting multi-user rooms for voice and video calls.	LINK
AndroidRTC	Original web-based implementation of WebRTC adapted to Android for peer-to-peer video communication.	Not available

Custom Development and Enhancements

- **Server-Side Improvements:** Modified and optimized the Spring Boot server from the “Android-VideoChat-master” project for Android WebRTC connections.
- **Client-Side Extensions:** Integrated frontend features from AndroidRTC and added emotion detection, enabling users to see real-time emotion analysis during video calls.
- **Feature Enhancements:**
 - Implemented “Emotion Report Generation” to analyze call history, helping users identify their “true friends.”
 - Added night mode and multi-language support, enhancing user experience for a broader audience.

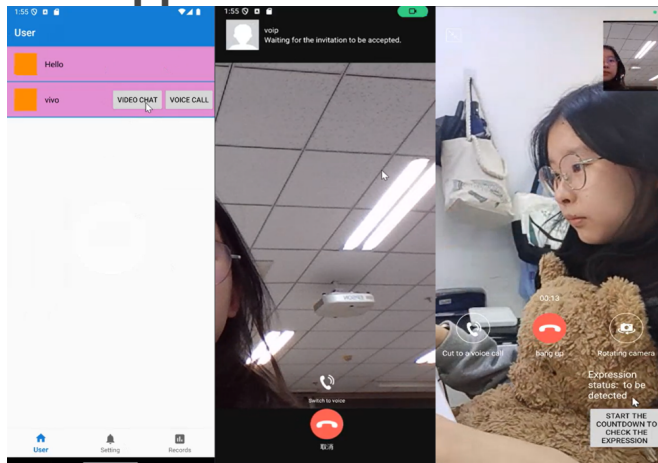
The uniqueness and implementation of the project

Cross-device Video Call Support

Enabled stable video calls between Android devices using WebRTC and a SpringBoot server, ensuring cross-device compatibility and a reliable connection.

Technologies and APIs Used:

WebRTC, Springboot server

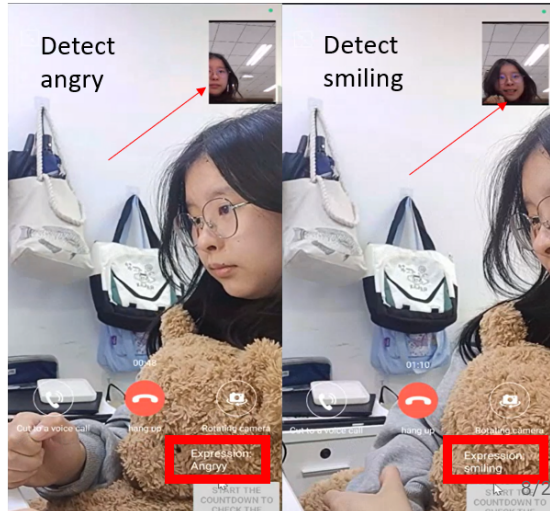


Real-time Emotion Detection

Integrated emotion recognition algorithms to enable real-time emotion detection during video calls. This feature captures users' immediate emotional responses and provides live feedback.

Technologies and

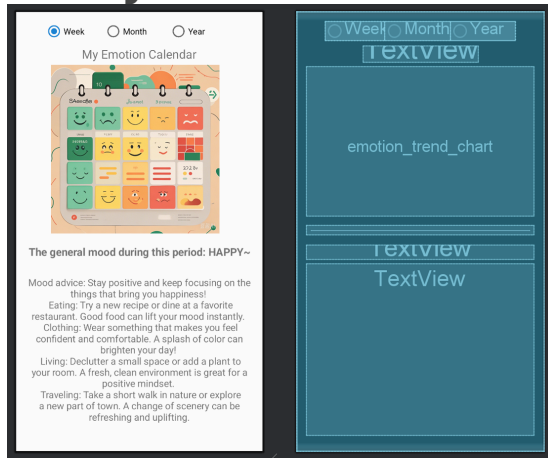
APIs Used: Involves the use of Google's Cloud API for emotion recognition.



Personal overall emotional analysis

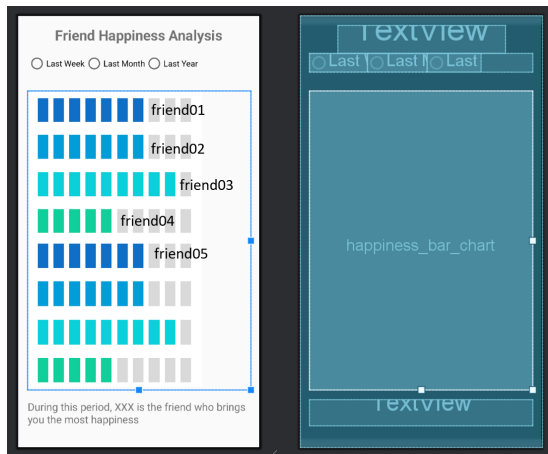
This feature allows users to view a calendar with daily recorded moods, enabling them to track emotional patterns over time. Each day in the calendar reflects a summary of the user's primary emotions detected during that day.

Technologies and APIs Used: SQLite Database for Local Storage, Calendar Interface (e.g., Android CalendarView), Mood-Based Recommendation System.



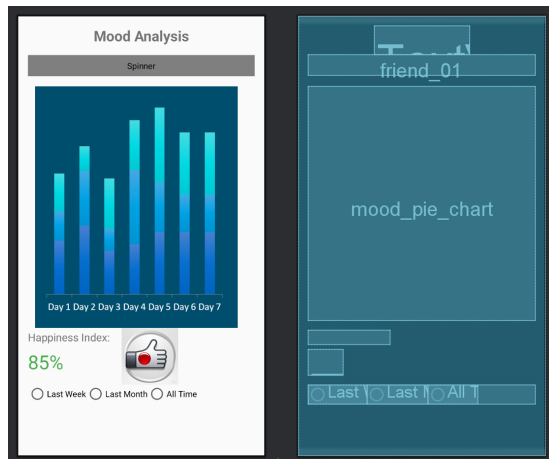
Comparison of Emotions with Different Friends

During the same period of time (such as week, month, or year), this feature helps users compare the happiness index brought by interactions with different friends. The application will arrange each friend in descending order based on their positive emotional impact, allowing users to clearly see who brings the most joy.



Mood analysis with specific friends

This feature helps users understand their emotional performance during a video call with a particular friend, generating analysis reports that show the mood swings caused by the interaction with that friend.



Switch the language

- Supporting multiple language options, users can easily switch between different languages according to their needs, making the application more globally adaptable.

Night mode

- Provide night mode to protect users' eyes, especially when used at night to alleviate visual fatigue.

Work done/completed so far

A Memorable Milestone

I spent a significant amount of time on GitHub searching for compatible Spring Boot servers and client applications for WebRTC that would run without errors.

After facing numerous issues, I dedicated over a week modifying and optimizing the Spring Boot server, aiming to make it fully functional with Android for WebRTC connections.

Late one night, at around 3 AM, my code finally ran without errors. I felt a surge of excitement, knowing I was one step closer to achieving video calling functionality. Since video calling requires two Android devices, I only had one. Undeterred, I went around the teaching building at 3 AM hoping to find someone to lend me a phone. Surprisingly, I managed to find a classmate in another room willing to lend me their Android device.

With both devices, I successfully tested the video calling feature. This milestone was a testament to the persistence and dedication invested in this project.

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Future Work Plan



- **Server-Side Improvements:**

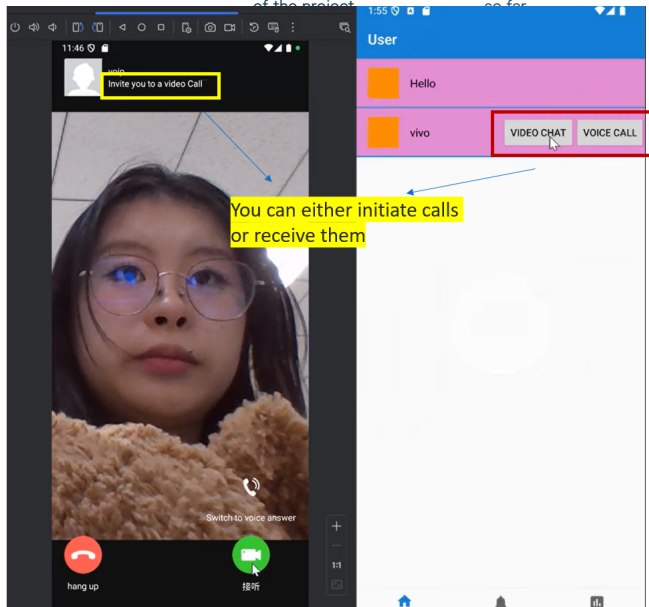
- Modified and optimized the Spring Boot server from the “Android-VideoChat-master” project to make it compatible with WebRTC connections on the Android platform.
- Successfully implemented video calling functionality.

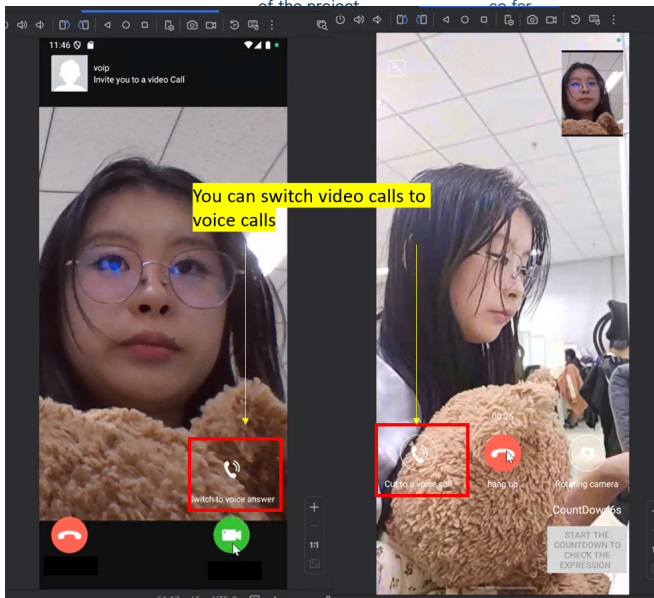
- **Emotion Detection Feature (Simulated):**

- Added an interface for emotion detection on the video calling page.
- Currently simulates emotion detection; full functionality is planned for future development.

- **Emotion Report Generation:**

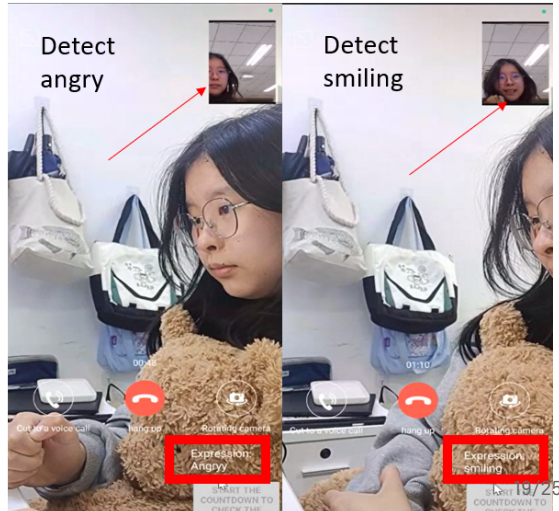
- Generates post-call records with simulated emotion data for each user.
- Helps track emotional interaction history for identifying “true friends.”

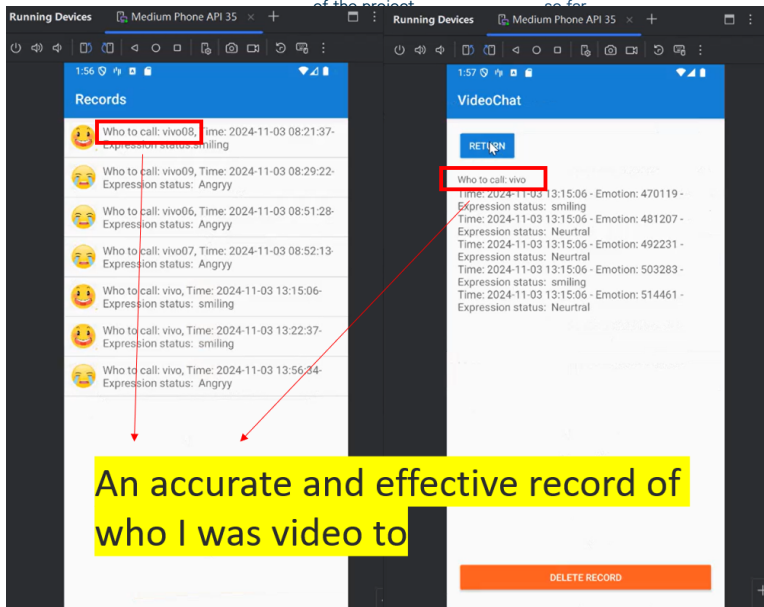


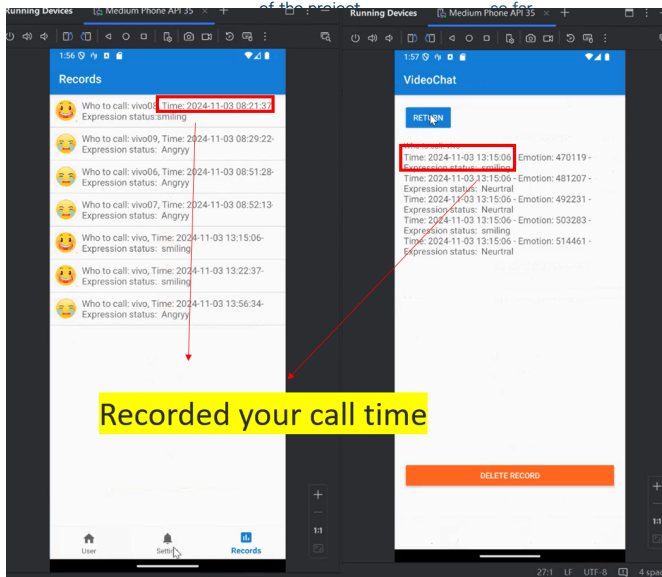


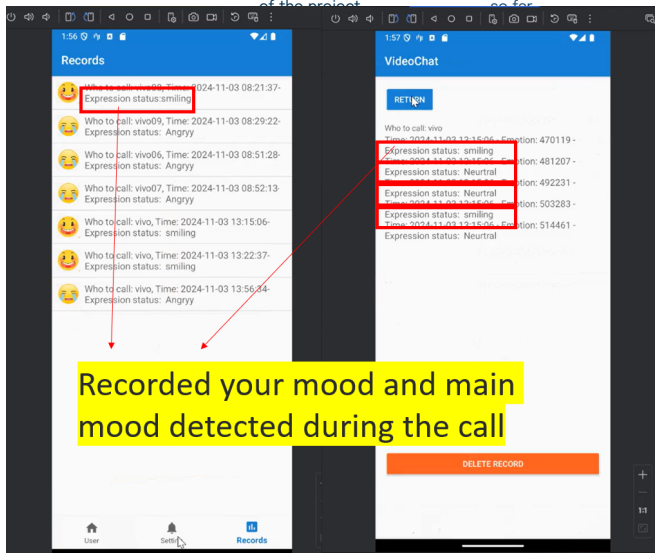
Real-time Emotion Detection

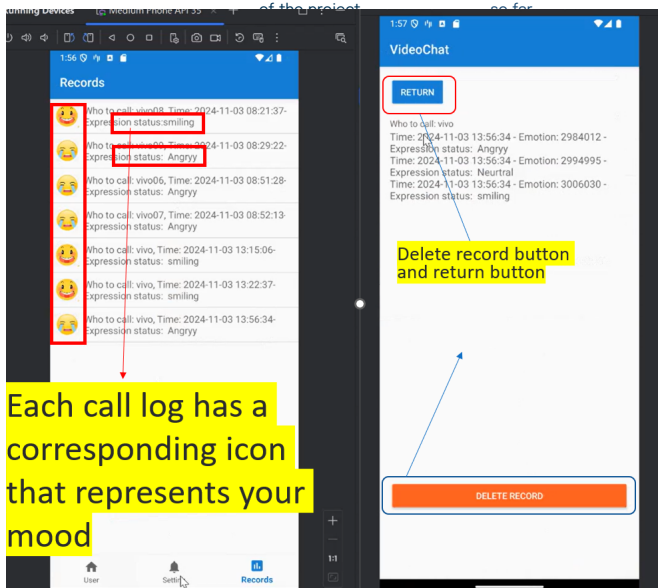
On the video call page,
It is possible to display and detect your mood, but for now it is only a simulation. I will implement real mood detection later.











Future Work Plan

- **Week 10:** Implement emotion detection API integration to enable real-time mood analysis during video calls.
- **Week 11:** Develop functionality for generating detailed mood reports after each call.
- **Week 12:** Integrate an API to provide personalized recommendations based on mood statistics.
- **Week 13:** Implement statistical chart generation to visualize mood data and provide insights.



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Thank you for your attention

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