

Police Recording Application

Software Requirements Documentation

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1. Introduction

1.1. Purpose

This document seeks to outline and describe the software requirements for the police recording application (PRA). This document supplies a development team with a summary of the necessary functions of the PRA, along with diagrams detailing the architecture and functionality of the PRA and with its functional and nonfunctional requirements.

1.2. Scope

This Police Recording application will allow users to create audio and video recordings and upload them to a remote location, using a broadcast style of upload. The PRA will also feature a section outlining the legal rights a person possesses when making audio and video recordings of 3rd parties in public and private locations. The PRA will provide an easy to use interface and will offer users a robust and simple way to create and ensure the preservation of their recordings, while also supplying them with a clear overview of their legal rights.

1.3. Overview

The remainder of this document will be organized in the following manner: Section 1.4 will contain definitions of terms relevant to the PRA. Chapter 2 will provide a general description of the PRA, and Chapter 3 will describe the functional, nonfunctional and performance requirements of the PRA, in addition to an overview of the necessary interfaces for the PRA.

1.4. Definitions

Authentication: Authenticating a user's Gmail account using OAuth 2.0.

Broadcast: Broadcasting a video to YouTube using the `liveBroadcasts.insert` method of the YouTube Data API.

Settings: A view where users can customize the functionality that they want from the app, including their state, their Gmail account, whether they want to broadcast their recordings and whether they want their broadcasts to be public or private.

2. General Description

2.1. Project Perspective

In recent years, many citizens have sought to make video recordings of citizen-police encounters, which they observe or are a party to. However, officers often confiscate cell phones which they believe hold evidence, resulting in the possible loss of the video footage. This problem could be avoided if citizens had an easy and automatic way to upload their videos to a secure location.

2.2. Product Functions

2.2.1. Create Audio and Video Recordings

The system will provide the user with an interface to make audio and video recordings. The user will access the system on their Android device.

2.2.2. Save Audio and Video Recordings Locally

When a user creates a video recording, the system will save the recording to the user's Android device.

2.2.3. Upload Audio and Video Recordings

If the user submits their YouTube account data to the PRA and indicates in the PRA settings that they want to upload their in-app recordings to YouTube, the PRA will broadcast video live and upload completed videos onto YouTube. If the Android device does not have network connectivity, it will still save the video locally.

2.2.4. Legal Rights Section

The PRA will include a section outlining the legal rights of the user, based on location, to make audio and video recordings of others in public and private locations.

3. Requirements

3.1 Functional Requirements

3.1.1. Add Gmail Account

3.1.1.1. Introduction

The PRA will authenticate the user's YouTube account information.

3.1.1.2. Inputs

Gmail Account Name: The user's gmail account name

Gmail Account Password: The user's gmail account password

3.1.1.3. Processing

The application will use OAuth 2.0 to verify the user's account information and retrieve a certification token to use the YouTube Data API (v3) within the app.

3.1.1.4. Outputs

The user will receive a success message regarding the addition of their account information.
The

3.1.1.5. Error Handling

If the Android device does not have a network connection, the app will prompt the user to try again later.

If the authentication fails, the app will prompt the user to enter correct data.

3.1.2. Change App Settings

3.1.2.1. Introduction

The user will be able to customize their settings within the app.

3.1.2.2. Inputs

Automatic Uploading: The user's preference for recording upload

Public or Private Broadcast: The user's preference for public or private broadcasts

State: The user's state, which will allow the app to personalize the legal rights section

Gmail Account: allows the user to add or remove their Gmail account

3.1.2.3. Processing

The app will adjust the settings according to the user's specifications.

3.1.2.4. Output

The app will alert the user that their changes have been saved.

3.1.2.5. Error Handling

If the user attempts to add an invalid Gmail account, the app will prompt them to re-enter their information.

If the app fails to save the changes, it will notify the user.

3.1.3. Check Legal Rights

3.1.3.1. Introduction

The user will be able to read over their legal rights regarding video and audio recording for any state in the United States within the app.

3.1.3.2. Inputs

The user can select their state within the app's settings view.

3.1.3.3. Processing

The user's state's legal information is printed on the legal rights view, and the user may select any other state they want to view information for.

3.1.3.4. Output

The app will give the user legal information pertinent to their location.

3.1.4. Make Video Recording

3.1.4.1. Introduction

The app will allow the user to make a video recording.

3.1.4.2. Inputs

Initial Button Press: the user will press a button to begin the video recording.

Final Button Press: the user will press a button to end the recording.

3.1.4.3. Processing

The app will take a video recording until the user presses the button to stop recording.

The app will save the video locally, and if the user has the automatic upload setting enabled, the video will be broadcasted to YouTube.

3.1.4.4. Outputs

The app will notify the user of their upload and save status.

3.1.4.5. Error Handling

If the user's device does not have a network connection, the device will continue to record and to save the video locally.

If the app is unable to open the device's camera app, it will notify the user.

If the app is unable to successfully save the video, it will notify the user.

3.1.5. Make Audio Recording

3.1.5.1. Introduction

The app will allow the user to make an audio recording.

3.1.5.2. Inputs

The user presses a button to indicate they would like to start an audio recording.

3.1.5.3. Processing

Until told to stop by the user, the app uses the mobile device's microphone to make an audio recording.

3.1.5.4. Output

The audio is saved to the device's local storage.

3.1.5.5. Error Handling

If the application does not have access to the microphone or the device's local storage, an error message will be displayed informing the user.

3.2. Use Case Diagram

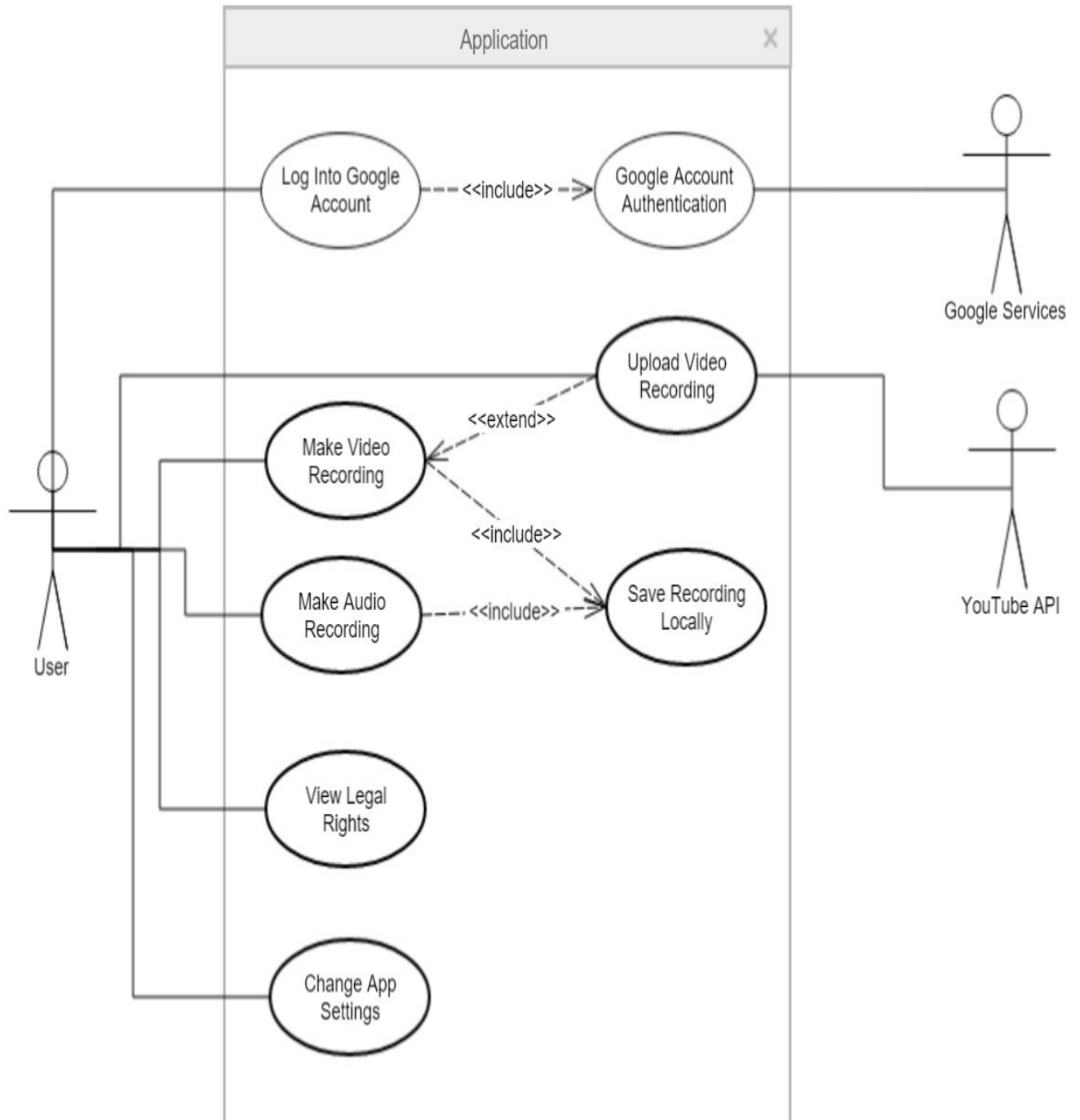


Figure 1: A use case diagram for the recording application

3.3. Activity Diagrams

3.3.1. Log Into Google Account

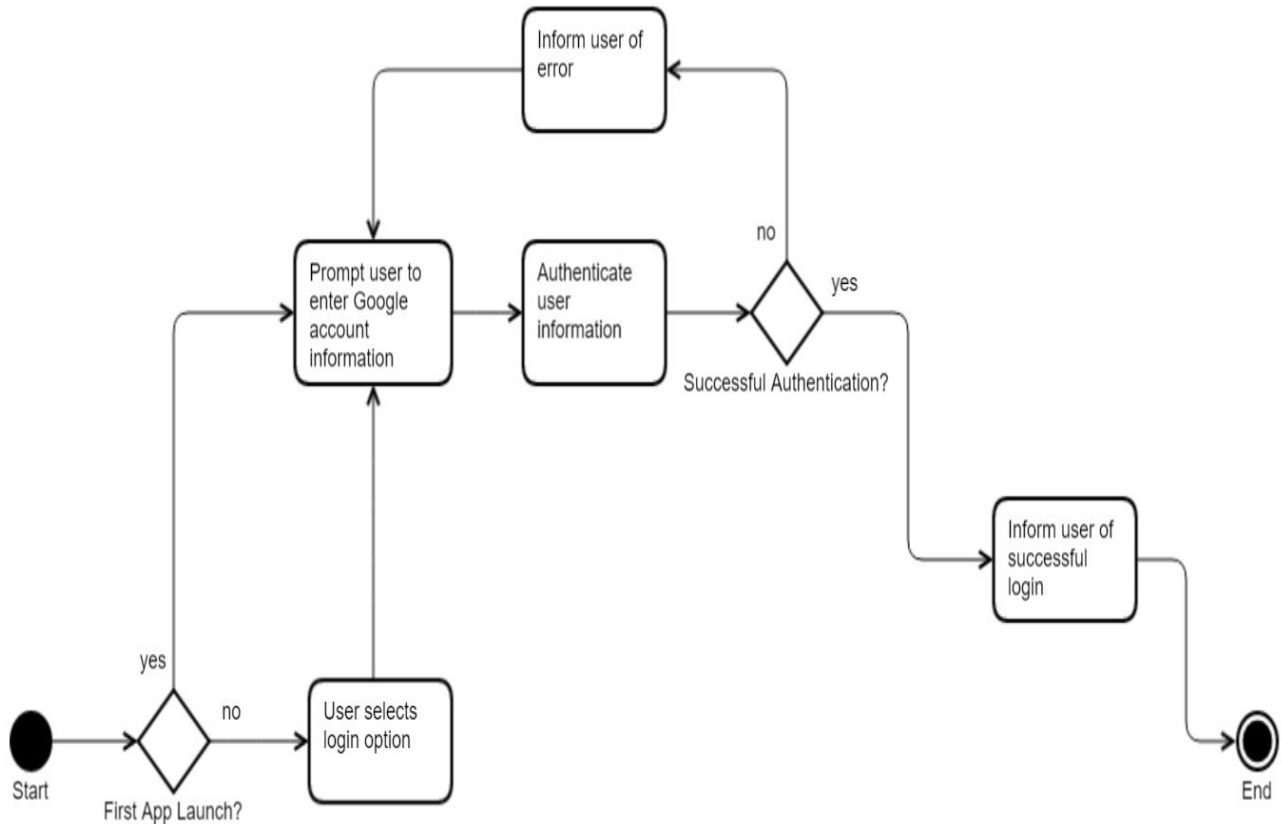


Figure 2: Activity Diagram for the “Log Into Google Account” use case

3.3.1.1. Description

This activity diagram represents a user logging into a Google account for uploading and broadcasting services. At first app launch, the user is automatically prompted to enter their account credentials. The user can also select to login at any time through the settings. The account credentials entered are verified through Google OAuth 2.0 authentication. The user is informed of success or failure.

3.3.1.2. Functional Requirement

This activity diagram fulfills functional requirement 3.1.1, allowing login to a Google account for the use of YouTube services.

3.3.2. Make Video Recording

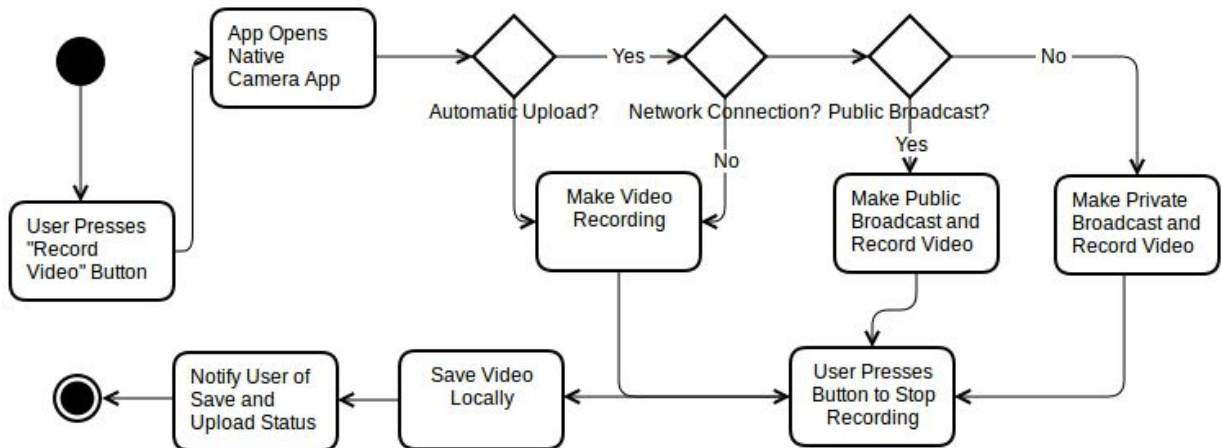


Figure 3: The activity diagram for the “Make Video Recording” use case

3.3.2.1. Description

This activity diagram represents a user making a video recording. The user begins the process by pressing a button, and then the software checks the user’s upload settings. If the user has not selected the automatic upload setting, the app makes a video recording and saves it locally. If the user has selected the automatic upload setting, the app checks the device’s network connection and the user’s broadcast setting. The app makes a private YouTube broadcast if the user selected private broadcasts and a public one if he or she selected public broadcasts. In both cases, the video is saved locally. If the device does not have a network connection, then the device makes a video recording and saves it locally. The software will then notify the user of the video’s save and upload statuses.

3.3.2.2. Functional Requirement

This activity diagram fulfills functional requirement 3.1.4, allowing a user to make a video recording.

3.3.3. Make Audio Recording

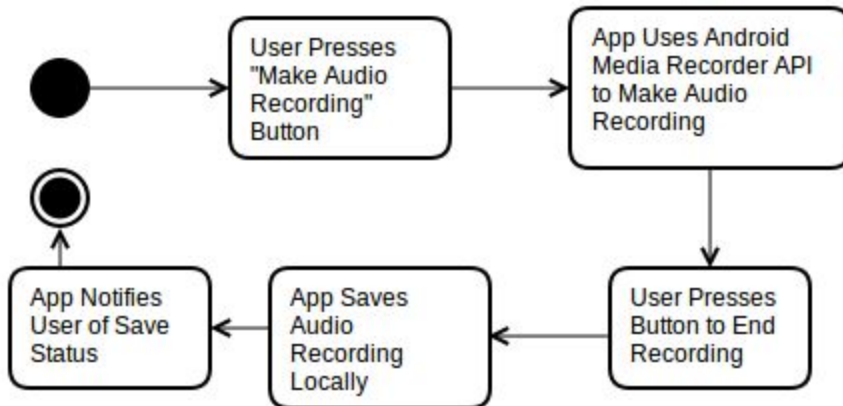


Figure 4: The activity diagram for the "Make Audio Recording" use case

3.3.3.1. Description

This activity diagram represents a user making an audio recording. The user begins the process by pressing a button, and then the software makes the recording and saves it locally.

3.3.3.2. Functional Requirement

This activity diagram fulfills functional requirement 3.1.5, allowing a user to make an audio recording.

3.3.4. View Legal Rights

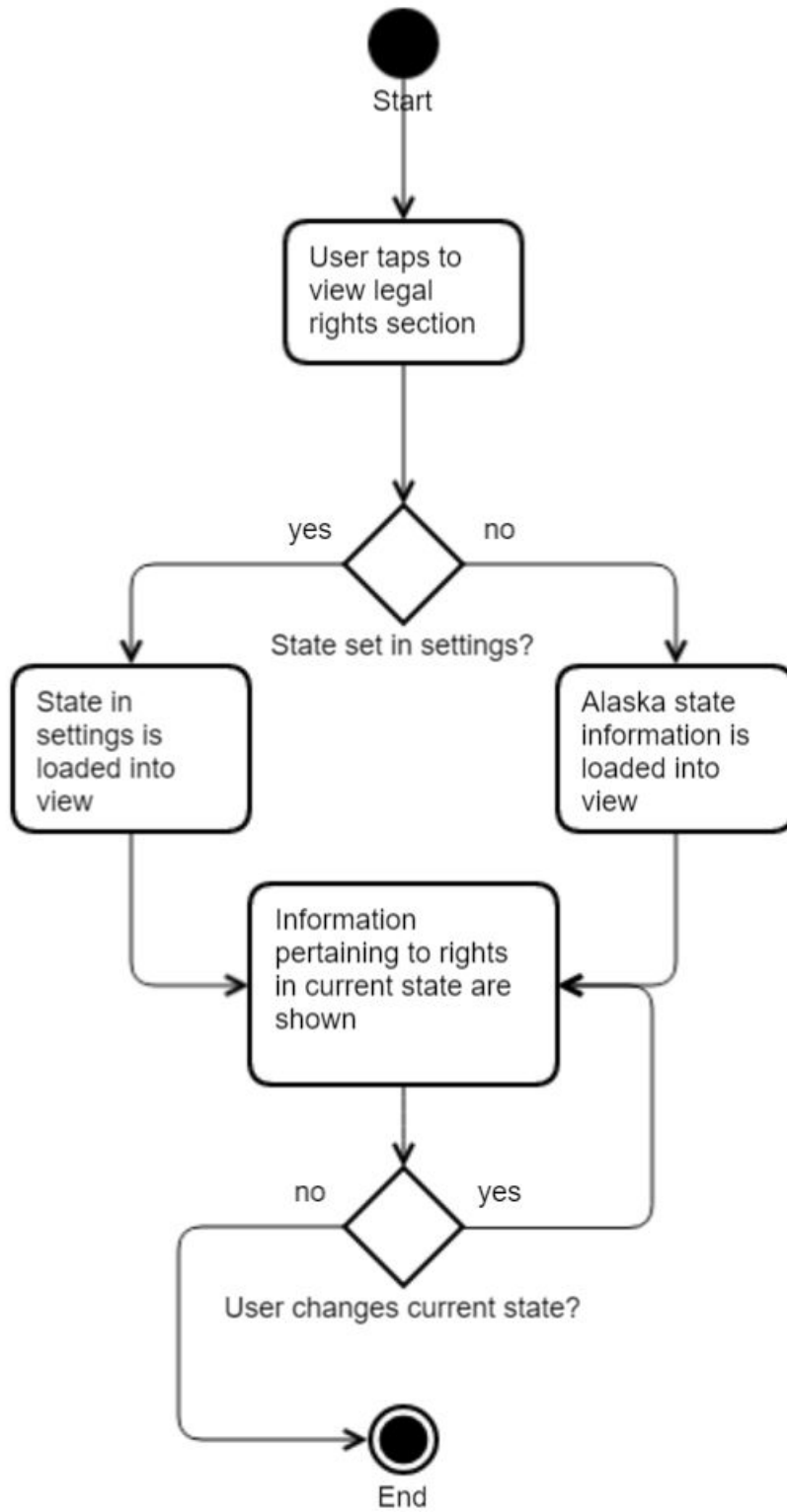


Figure 5: The activity diagram for the "View Legal Rights" use case

3.3.4.1. Description

This activity diagram shows the implementation of the “View Legal Rights” use case. The user indicates that they wish to view a state’s legal rights information by tapping the appropriate section. If the user has set a state as their home state in the settings view, that state’s information is loaded into the legal rights view. If not, Alaska’s state information is loaded since it is first in the alphabet. The user can change which state they are viewing via a dropdown menu.

3.3.4.2. Functional Requirement

This activity diagram fulfills functional requirement 3.1.3, allowing a user to check their legal rights within the application.

3.3.5. Change App Settings

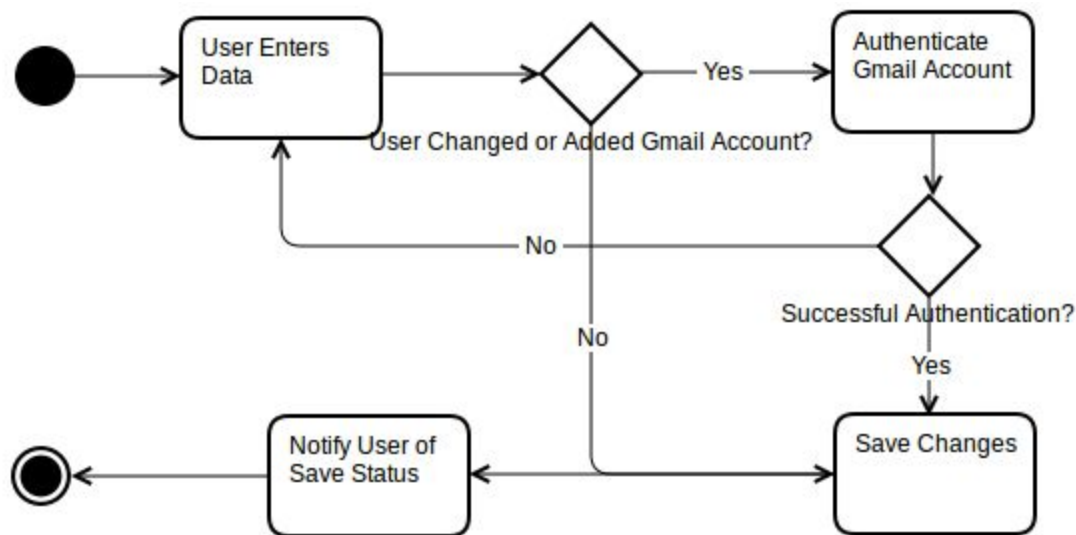


Figure 6: The activity diagram for the “Change App Settings” use case

3.3.5.1. Description

This activity diagram represents a user changing the app settings. The user enters the data they wish to save. If the user has changed or added a Gmail account, the app authenticates it using OAuth 2.0 authentication. If unsuccessful, the app prompts the user to re-enter their account information. The app then saves the updated settings.

3.3.5.2. Functional Requirement

This activity diagram fulfills functional requirement 3.1.2, allowing a user to change their desired settings.

3.4. Class Diagram

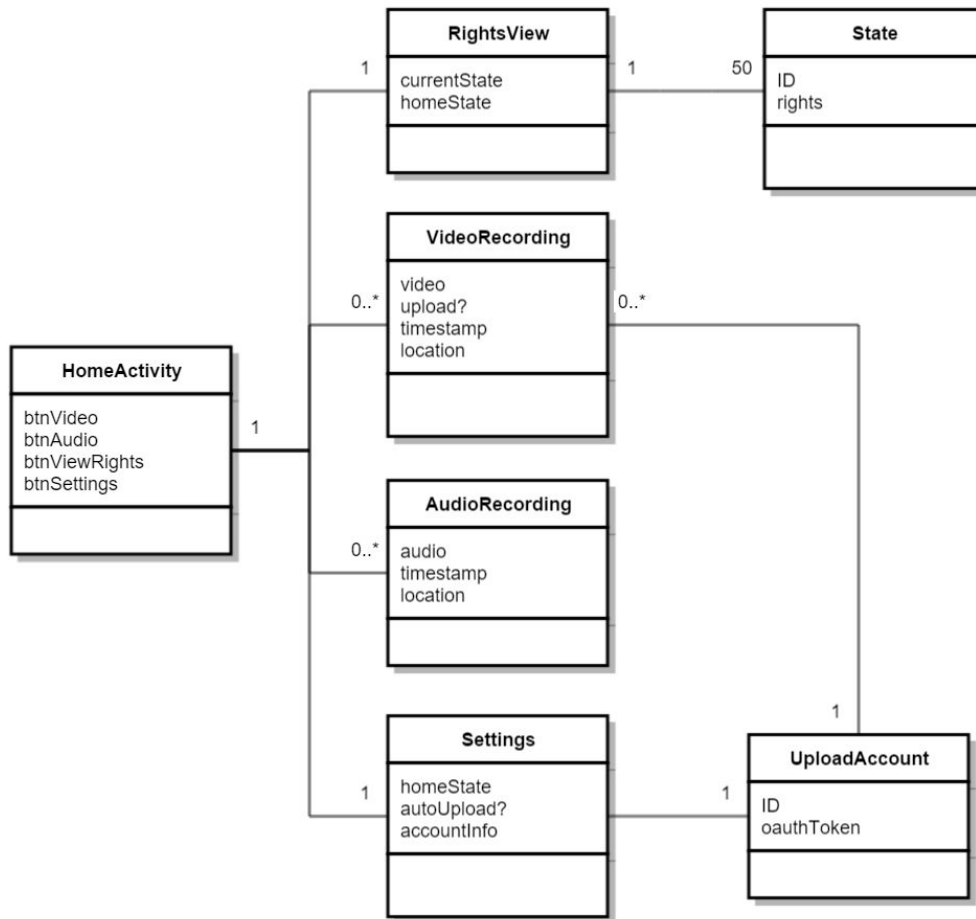


Figure 7: The class diagram for the PRA

3.4.1 Description

This high-level class diagram represents the police recording application system. Everything is accessible from the home activity. The rights activity will hold info on all 50 states and remember which state the user prefers. The settings activity will hold the Google account information for the user, if they are logged in through the application.

3.5. External Interface Requirements

3.5.1 User Interfaces

3.5.1.1 Main User Interface

A main user interface will be implemented, from this screen there will be options to choose from to change settings, view the Know Your Rights section, make an audio recording, make a video recording and view previous recordings.

3.5.1.2 Know Your Rights Interface

This interface will provide information regarding a user's legal rights to record police and broadcast those police recordings.

3.5.1.3 Audio Recording Interface

This interface will be used to save, delete and broadcast audio recordings.

3.5.1.4 Video Recording Interface

This interface will be used to save, delete and broadcast video recordings.

3.5.1.5 Settings Interface

This interface will contain information relating to the app and user, it is where users can decide whether the app will broadcast their recordings to their YouTube account or Google accounts or just save the recordings locally. It will also be where users can change the personal information associated with their account including the YouTube and Google accounts videos are saved or broadcast to.

3.5.2 Hardware Interfaces

This application will need to interact with several other parts of the device, including the microphone and camera for recording purposes. Additionally, the application will need to use the device's file storage in order to save and store the recordings locally, so that they can be retrieved later. It will also need to use the device's internet connection in order to broadcast the recordings.

3.6. Performance Requirements

3.6.1 Offline Use

It will be necessary for this app to be used when the device is offline. This is when it will be necessary for local storage so that a recording can be made and saved for future broadcasting when the device is online.

3.6.2 Broadcast Recordings

It will be necessary that when available and settings are set to function that videos can be broadcast to the chosen sight as they are being recorded.