Artificial Vision for Visually Impaired

This manual will help you setup all the layers/assets to fully run this project. This project is based on 3-tier architecture as follows:

1. Frontend layer (user facing – Android/IOS application)

2. Middleware layer (API for connecting Frontend layer with Backend layer)

3. Backend layer (Google Colab hosted AI-model)

Each layer requires its own setup with different tools and configurations, which will be explained in detailed manner in below sections.

1. **Frontend layer**
   - List of installations required:
     - NodeJS
     - NPM
     - Java JDK 1.8 (with JAVA_HOME environment variable set)
     - Android Studio (with ANDROID_SDK_ROOT environment variable set)
     - Microsoft Visual Studio Code

   Setup:

     - Once all installations are done, open the SourceCode/FrontEnd folder in MS Visual Code
     - Open the integrated terminal window and check if the terminal is set to this path
     - Run the command “npm install” – this will install all the Frontend project libraries and dependencies
     - On your android device, enable the Developer Tools option by clicking the Build Number in phone settings continuously.
     - In the developer tools, enable the option for Android Debugging.
     - To verify the connection with laptop, connect the mobile device with your laptop using USB charging cable.
     - Run the command “adb devices” to see entry of your mobile in command prompt. This ensures your mobile is connected for debugging session using ADB.
     - Now run the command “ionic cordova run android”. (This step will take time and install app on your mobile)
     - Once you see the app installed in your mobile, you can disconnect the mobile from laptop.
2. **API Layer**
   - Softwares required:
     - You need to create an account with https://anvil.works
     - Once that is done, you need to create a new application.
     - In the server code, paste the contents of .py file inside SourceCode/API
     - And run the application.
3. **Backend Layer**
   - Softwares required:
     - Account with Google colab.
     - Open the .ipynb file from SourceCode/BackEnd
     - From the above options, in runtime menu click Run all