

Technical Installation Manual for : Smart Parking System (ParkMe)

1. Introduction

This manual provides detailed instructions for installing and configuring the ParkMe App. The system is structured with a front-end built using Flutter and Firebase as the backend service. The application requires the installation of Flutter, Dart, and Firebase CLI on your development environment. Additionally, a `.env`, `AndroidManifest.xml`, `strings.xml` file must be configured to store environment variables necessary for connecting to Firebase services. And finally, some android device will be needed to run the application, either emulated or physical.

2. Prerequisites

Before beginning the installation process, ensure you have the following software installed:

Software Requirements

- **Flutter SDK:** Version 3.0.0 or higher
- **Dart SDK:** Version 2.15.0 or higher (typically bundled with Flutter)
- **Firebase CLI:** Version 11.0.0 or higher
- **Git:** Version 2.25.0 or higher
- **A code editor:** Such as Visual Studio Code or Android Studio

System Requirements

- **Operating System:** Windows 10/11, macOS 10.15 or later, or Linux (Ubuntu 20.04 or later)
- **Memory:** 8GB RAM (16GB recommended)
- **Disk Space:** 2GB of available space

Environment Configuration

- **.env File:** Ensure you have the `.env` file configured with necessary environment variables (e.g., Firebase API keys, etc.).
- **AndroidManifest.xml File:** Ensure you have the `AndroidManifest.xml` file configured with necessary variables.
- **strings.xml File:** Ensure you have the `strings.xml` file configured with necessary variables.

Device

- **Emulator:** Ensure you have an emulated android machine running through Android Studio.
OR
- **Physical:** Ensure you have a physical Android device connected to your computer with USB Debugging enabled

3. Installation

Follow these steps to install the ParkMe app on your local machine:

3.1 Clone the Repository

Open your terminal and run the following command to clone the repository:

```
git clone https://github.com/COS301-SE-2024/Smart-Parking-System.git
cd Smart-Parking-System
code .
```

3.2 Install Flutter SDK

If Flutter is not installed on your system, follow the steps in the flutter documentation below:

<https://docs.flutter.dev/get-started/install>

3.3 Set Up the .env, AndroidManifest.xml, and strings.xml File

1. .env : Add to the root of the project folder (Smart-Parking-System\)
2. AndroidManifest.xml : Add to : Smart-Parking-System\android\app\src\main\
3. strings.xml : Add to : Smart-Parking-System\android\app\src\main\res\values

3.4 Install Dependencies

Run the following commands to install the project dependencies:

```
flutter clean
flutter pub get
```

4. Deployment/Running

4.1 Running the App

To run the app locally, use the following command:

```
flutter run
```

This will build and run the app on your connected device or emulator.

4.2 Building for Production

To build the app for production, run:

```
flutter build apk --release
```

This command will generate the APK file in the `build/app/outputs/flutter-apk/` directory.

4.3 Deployment to Firebase Hosting

If you want to deploy it to Firebase Hosting, follow these steps:

1. Initialize Firebase Hosting:

```
firebase init hosting
```

2. Deploy the app:

```
flutter build web  
firebase deploy --only hosting
```

5. User Manual

For details on how to use the system, please refer to the [User Manual](#)

This manual should provide you with everything needed to successfully install and run the ParkMe app with a Firebase backend. Make sure all the version numbers match the specified versions to avoid compatibility issues.