Modules

- On Indonesia Sunshine - Complete Documentation

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> **Application Name**: On Indonesia Sunshine
> **Type**: Mobile Attendance Management System
> **Version**: 1.0.0
> **Platform**: Android, iOS, Web, Desktop (Windows, macOS, Linux)
> **Last Updated**: February 2026

Introduction

About the Application

On Indonesia Sunshine is a comprehensive mobile attendance management system built with Flutter. The application enables employees to clock in and out with GPS verification, capture attendance photos, track their attendance history, and manage company assets.

Key Features at a Glance

- GPS-based attendance tracking
- Photo verification for check-in/check-out
- Real-time location mapping
- Attendance history with calendar view
- Asset management system
- Role-based access control
- Secure authentication with JWT
- Multi-platform support

Getting Started

System Requirements

For Development

- **Flutter SDK**: 3.1.0 or higher
- **Dart SDK**: Included with Flutter
- **IDE**: VS Code or Android Studio
- **OS**: macOS, Windows, or Linux

For Android Development

- Android SDK (API 20+)
- Android Studio or command-line tools
- Java Development Kit (JDK)

For iOS Development (macOS only)

- Xcode 12.0 or higher
- iOS SDK
- CocoaPods

Installation

Step 1: Install Flutter

macOS

```
brew install flutter
```

Windows

1. Download Flutter SDK from https://flutter.dev

2. Extract to C:\flutter
3. Add to PATH: C:\flutter\bin

Linux

```
# Download and extract Flutter
cd ~/development
tar xf flutter_linux_*.tar.xz
export PATH="$PATH:`pwd`/flutter/bin"
```

Step 2: Verify Installation

```
flutter doctor
```

Step 3: Clone and Setup Project

```
# Clone repository
git clone <repository-url>
cd on-indonesia-absensi

# Install dependencies
flutter pub get

# Run the application
flutter run
```

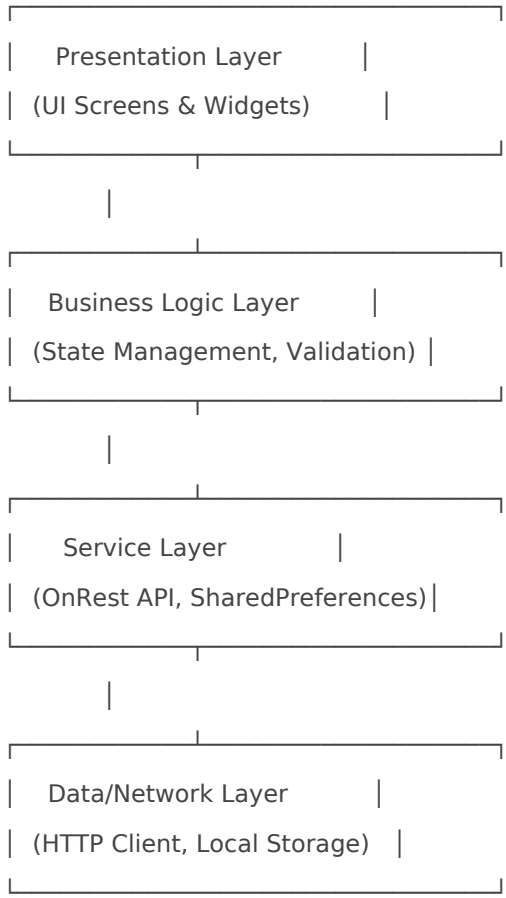
Architecture Overview

Technology Stack

Component	Technology
Framework	Flutter 3.1.0+
Language	Dart

Component	Technology
State Management	StatefulWidget + Global State
Networking	HTTP Package
Local Storage	SharedPreferences
Maps	Google Maps Flutter
Authentication	JWT (JSON Web Token)
Backend API	REST API

Application Architecture



Project Structure

```
lib/
├── main.dart                    # Application entry point
```

```
├── services/                  # Backend services
│   ├── onrest.dart            # API service (all HTTP calls)
│   ├── on_shared_preferences.dart  # Local storage
│   └── globals.dart           # Global state variables
└── pages/                     # UI screens
    ├── spalshscreen.dart      # Splash screen
    ├── login/                 # Login module
    ├── mainscreen.dart        # Main navigation
    ├── camera_preview.dart    # Camera functionality
    └── screen/                # Feature screens
        ├── homescreen/        # Home & attendance
        ├── historyscreen/     # Attendance history
        ├── profilescreen/     # User profile
        └── assetmanagement/   # Asset management
```

Core Features

1. Authentication

Login Process

The application uses JWT-based authentication:

1. User enters credentials (username/password)
2. App sends request to `/api/auth/login`
3. Server validates and returns JWT token
4. Token is stored in SharedPreferences
5. Token is included in all subsequent API requests

Security Features

- JWT token-based authentication
- Secure storage using SharedPreferences
- Screenshot prevention (Android)
- Device identification tracking

- Jailbreak/Root detection

Code Example: Login

```
Future loginApp(String username, String password) async {
  Uri url = Uri.parse('$apiAddress/auth/login');

  final http.Response response = await http.post(
    url,
    headers: <String, String>{
      'Content-Type': 'application/json',
    },
    body: jsonEncode({
      "username": username,
      "password": password,
      "isNative": true
    }),
  );

  if (response.statusCode == 200) {
    var result = json.decode(response.body);
    // Store token and user info
    return result;
  }
}
```

2. Attendance Management

Clock In Process

1. **Location Detection**: App gets current GPS coordinates
2. **Site Verification**: Finds nearest registered site
3. **Photo Capture**: Takes employee photo
4. **Validation**: Checks if within allowed distance
5. **Submission**: Sends data to server

Clock Out Process

1. **Status Check**: Verifies user is clocked in
2. **Location Capture**: Gets current location
3. **Photo Verification**: Takes exit photo
4. **Update Record**: Updates existing attendance record

Data Stored for Attendance

Field	Description
employeeCode	Unique employee identifier
timeIn / timeOut	Server timestamp
locationIn / locationOut	GPS coordinates
pictureIn / pictureOut	Photo URLs
statusIn / statusOut	Onsite/Offsite status
offsiteReason	Reason if offsite

Attendance Status

- **Checked In**: Employee has clocked in, not yet out
- **Checked Out**: Employee has completed day
- **Offsite**: Working from non-registered location
- **Not Checked In**: No active attendance

3. Location Tracking

GPS Integration

The app uses multiple location packages:

- **geolocator**: Gets current GPS coordinates
- **geocoding**: Converts coordinates to addresses
- **google_maps_flutter**: Displays maps

Site Verification Algorithm

1. Get current location (latitude, longitude)
2. Fetch list of registered sites from API
3. Calculate distance to each site
4. Find nearest site
5. Check if distance < allowed radius
6. Set status: Onsite or Offsite

Map Features

- Real-time location marker
- Nearby site markers
- Distance calculation
- Address display
- Refresh location button

4. History Tracking

Features

- View attendance by month
- Calendar view with attendance dates
- Filter by date range
- Detailed record display
- Export functionality (future)

History Data Display

For each attendance record:

- Date and time in/out
- Duration
- Location (address)
- Photos (in/out)
- Status (onsite/offsite)
- Approval status

5. Asset Management

> **Note**: This module is role-based. Only users with asset management permission can access it.

Asset Inventory

Features:

- Add new assets
- Update asset information
- View asset details
- Track asset history
- Photo documentation
- Vendor management

Asset Information:

- Asset number
- Asset name
- Serial number
- Brand and type
- Purchase date
- Price
- Condition
- Current location
- Assigned employee

Asset Tracking

Track asset movements and maintenance:

- Service history
- Location changes
- Condition updates
- Photo documentation
- Employee assignments

API Reference

Base Configuration

Base URL: https://sunshineapi.onindonesia.id/api

Authentication: Bearer Token (JWT)

Content-Type: application/json

Authentication Endpoints

Login

POST /auth/login

Request Body:

```
{
  "username": "string",
  "password": "string",
  "isNative": true
}
```

Response (200):

```
{
  "token": "jwt_token",
  "name": "Employee Name",
  "code": "EMP001",
  "position": "Position Title"
}
```

Attendance Endpoints

Create Attendance (Clock In)

POST /attendance/create

Authorization: Bearer {token}

Request Body:

```
{
  "employeeCode": "string",
  "locationIn": "address",
  "pictureIn": "base64_or_url",
  "latIn": "latitude",
  "longIn": "longitude",
  "statusIn": "onsite|offsite",
  "status": true,
  "timeIn": "timestamp",
  "offsiteReason": "reason_if_offsite",
  "dateImage": "date",
  "stage": "in"
}
```

Response (200):

```
{
  "id": "attendance_id",
  "message": "Success"
}
```

Update Attendance (Clock Out)

POST /attendance/update

Authorization: Bearer {token}

Request Body:

```
{
  "id": "attendance_id",
  "employeeCode": "string",
  "locationOut": "address",
  "pictureOut": "base64_or_url",
  "latOut": "latitude",
```

```
  "longOut": "longitude",
  "statusOut": "onsite|offsite",
  "status": true,
  "timeOut": "timestamp",
  "offsiteReason": "reason_if_offsite",
  "dateImage": "date",
  "stage": "out"
}
```

Check Attendance Status

```
GET /attendance/check?employeeCode={code}
Authorization: Bearer {token}

Response (200):
{
  "status": "checked_in|checked_out|none",
  "now": {
    "in": {
      "timeIn": "timestamp",
      "locationIn": "address",
      ...
    },
    "out": { ... }
  }
}
```

Get Attendance History

```
POST /attendance/personal
Authorization: Bearer {token}

Request Body:
{
  "employeeCode": "string",
  "date": "YYYY-MM"
}
```

Response (200):

```
[
  {
    "id": "id",
    "date": "date",
    "timeIn": "time",
    "timeOut": "time",
    "locationIn": "address",
    "locationOut": "address",
    ...
  }
]
```

Upload Image

POST /attendance/upload-image

Authorization: Bearer {token}

Content-Type: multipart/form-data

Form Data:

- image: File
- employeeName: string
- statement: string

Response (200):

```
{
  "url": "image_url",
  "message": "Success"
}
```

Location Endpoints

Get Server Time

```
GET /servertime?isDate=true
Response (200):
{
  "server_time": "timestamp",
  "date": "YYYY-MM-DD"
}
```

Get Site List

```
GET /attendance/get-site-info
Authorization: Bearer {token}

Response (200):
[
  {
    "name": "Site Name",
    "latitude": "lat",
    "longitude": "long",
    "radius": "meters"
  }
]
```

Get Nearest Site

```
POST /attendance/get-nearest-site
Authorization: Bearer {token}

Request Body:
{
  "latitude": "current_lat",
  "longitude": "current_long"
}

Response (200):
{
  "site": "Site Name",
  "distance": "meters",
```

```
  "isWithinRadius": true
}
```

User Endpoints

Change Password

```
POST /user/change-password
Authorization: Bearer {token}

Request Body:
{
  "oldPassword": "string",
  "newPassword": "string"
}

Response (200):
{
  "message": "Password updated successfully"
}
```

Check User Access Menu

```
GET /user/accessmenu
Authorization: Bearer {token}

Response (200):
{
  "assetManagement": "true|false",
  "otherPermissions": "..."
}
```

Asset Management Endpoints

Get Company List

GET /assetManagement/company

Authorization: Bearer {token}

Response (200):

```
[
  {
    "id": "company_id",
    "name": "Company Name"
  }
]
```

Get Asset Inventory

GET /assetManagement/inventories?company={name}&filter={field}&key={value}

Authorization: Bearer {token}

Response (200):

```
[
  {
    "assetNumber": "AST001",
    "assetName": "Laptop",
    "serialNumber": "SN123",
    "status": "active",
    ...
  }
]
```

Add Asset

POST /assetManagement/inventories-mobile

Authorization: Bearer {token}

Content-Type: multipart/form-data

Form Data:

- assetPicture: File[] (multiple)
- employeePicture: File
- assetData: JSON string

Response (201):

```
{
  "message": "Asset created successfully",
  "assetNumber": "AST001"
}
```

Update Asset

PUT /assetManagement/inventories
Authorization: Bearer {token}

Request Body:

```
{
  "assetNumber": "AST001",
  "assetName": "Updated Name",
  "serialNumber": "SN123",
  "vendor": "Vendor Name"
}
```

Response (200):

```
{
  "message": "Asset updated successfully"
}
```

Get Asset Details

GET /assetManagement/tracking?assetNumber={number}
Authorization: Bearer {token}

Response (200):

```
{
  "asset": { ... },
  "history": [ ... ]
}
```

User Interface Guide

Navigation Structure

Bottom Navigation Tabs

1. **Home** (□□) - Attendance and location
2. **History** (□□) - Attendance history
3. **Profile** (□□) - User profile and settings
4. **Assets** (□□) - Asset management (if authorized)

Screen Descriptions

Splash Screen

- First screen shown on app launch
- Displays app logo
- Checks authentication status
- Redirects to Login or Home

Login Screen

Elements:

- Email/Username input field
- Password input field (with show/hide toggle)
- Login button
- Error message display

Validation:

- Required fields check
- Network connectivity check
- Credential validation

Home Screen

Top Section: Employee Profile Card

- Profile photo
- Employee name
- Position
- Employee code

Location Section: Map View

- Current location marker
- Nearby site markers
- Distance indicator
- Refresh location button

Instruction Banner: "Press the □□ button to find position, and Refresh button to place onsite position"

Attendance Section: Clock In/Out Card

- Current time display
- Status indicator (In/Out)
- Check In button (when available)
- Check Out button (when checked in)
- Offsite reason input (if not in site radius)

Last Attendance Section: Recent Record

- Date
- Time In/Out
- Location
- Status
- Photos

History Screen

Calendar View:

- Month selector
- Calendar grid
- Highlighted attendance dates
- Date selection

Filter Options:

- Date range picker
- Status filter (all, complete, incomplete)

List View:

- Chronological list of records
- Each item shows:
  - Date
  - Time in/out
  - Duration
  - Location
  - Status badge

Detail View (tap on record):

- Full attendance details
- Maps showing in/out locations
- Photos (in/out)
- Timestamps
- Status information

Profile Screen

Profile Information:

- Profile photo
- Full name
- Employee code
- Position
- Department
- Company

Actions:

- Change Password button
- Logout button

Change Password Screen

Form Fields:

- Current password
- New password
- Confirm new password

Validation:

- Current password verification
- Password strength check
- Confirmation match check

Asset Management Screens

Asset Menu

- Asset Management option
- Asset Inventory option

Asset List

Features:

- Search bar
- Company filter
- Asset cards showing:
  - Photo
  - Asset name
  - Asset number
  - Status badge

Asset Detail View

Tabs:

1. **Information**
   - Asset details
   - Owner information
   - Purchase details
2. **History**
   - Service records
   - Location changes
   - Assignments
3. **Photos**
   - Gallery view
   - Photo details

Add/Edit Asset

Form Sections:

- Basic Information
- Asset Details
- Owner Information
- Vendor Details
- Purchase Information
- Photo Uploads

Development Guide

Project Setup for Developers

1. Environment Setup

```
# Install Flutter
flutter doctor

# Clone repository
git clone <repo-url>
cd on-indonesia-absensi

# Install dependencies
flutter pub get

# Verify setup
flutter analyze
```

2. Running the Application

```
# List available devices
flutter devices

# Run on connected device
flutter run
```

```
# Run on specific device
flutter run -d <device-id>

# Run on emulator
flutter run -d emulator-5554
```

3. Development Workflow

Hot Reload: Press `r` in terminal

- Quick UI updates
- Preserves app state

Hot Restart: Press `R` in terminal

- Full app restart
- Clears state

Stop App: Press `q` in terminal

Code Structure

Services Layer

OnRest (`lib/services/onrest.dart`)

Singleton class handling all API communication.

Usage:

```
// Get instance
var api = OnRest.instance;

// Make API call
var result = await api.loginApp(username, password);

// Check result
if (result != 'error') {
  // Success
```

```
} else {
  // Handle error
}
```

OnSharedPreferences (`lib/services/on_shared_preferences.dart`)

Wrapper for SharedPreferences.

Usage:

```
// Save data
await OnSharedPreferences.instance.setStringValue("key", "value");

// Load data
String value = await OnSharedPreferences.instance.getStringValue("key");

// Delete data
await OnSharedPreferences.instance.removeValue("key");

// Clear all
await OnSharedPreferences.instance.clear();
```

Globals (`lib/services/globals.dart`)

Global state variables.

Common Variables:

```
import 'package:on_indonesia_sunshine/services/globals.dart' as globals;

// Authentication
globals.jwt              // JWT token
globals.code             // Employee code

// Attendance
globals.statusattandance // Current status
globals.timeIn           // Clock in time
globals.timeOut          // Clock out time
globals.capturedImage    // Photo file
```

```
// Location
globals.latIn, globals.longIn
globals.latOut, globals.longOut
globals.locationIn, globals.locationOut
```

Adding New Features

Example: Adding a New Screen

1. **Create Screen File**

```
// lib/pages/screen/myfeature/my_screen.dart
import 'package:flutter/material.dart';

class MyScreen extends StatefulWidget {
  const MyScreen({super.key});

  @override
  State<MyScreen> createState() => _MyScreenState();
}

class _MyScreenState extends State<MyScreen> {
  @override
  Widget build(BuildContext context) {
    return Scaffold(
      appBar: AppBar(title: const Text('My Feature')),
      body: Center(child: Text('Content')),
    );
  }
}
```

2. **Add Route**

```
// In main.dart
routes: {
  '/myscreen': (context) => const MyScreen(),
  // ...
```

```
},
```

3. **Navigate to Screen**

```
Navigator.pushNamed(context, '/myscreen');
```

Example: Adding API Endpoint

```
// In lib/services/onrest.dart

Future<dynamic> myNewEndpoint(String param) async {
  final jwt = await OnSharedPreferences.instance.getStringValue("accessToken");
  Uri url = Uri.parse('$apiAddress/my-endpoint');

  final http.Response response = await http.post(
    url,
    headers: <String, String>{
      'Content-Type': 'application/json',
      HttpHeaders.authorizationHeader: "Bearer $jwt"
    },
    body: jsonEncode(<String, String>{
      "parameter": param,
    }),
  );

  if (response.statusCode == 200) {
    if (kDebugMode) {
      print(response.body);
    }
    return jsonDecode(response.body);
  } else {
    return {'error': 'Request failed'};
  }
}
```

Building for Production

Android Build

```
# 1. Update version in pubspec.yaml
version: 1.0.1+2

# 2. Build release APK
flutter build apk --release

# 3. Or build App Bundle (for Play Store)
flutter build appbundle --release

# Output locations:
# APK: build/app/outputs/flutter-apk/app-release.apk
# AAB: build/app/outputs/bundle/release/app-release.aab
```

iOS Build

```
# 1. Update version
# Edit pubspec.yaml

# 2. Open in Xcode
open ios/Runner.xcworkspace

# 3. In Xcode:
# - Select "Any iOS Device"
# - Product → Archive
# - Distribute App
```

Build Checklist

- [ ] Update version number
- [ ] Test on physical devices
- [ ] Verify production API URL
- [ ] Remove debug code
- [ ] Run `flutter analyze`
- [ ] Test critical flows

☐ Prepare release notes

Configuration

Google Maps API Setup

1. Get API Key

1. Go to Google Cloud Console
2. Create or select project
3. Enable Maps SDK for Android
4. Enable Maps SDK for iOS
5. Create API Key

2. Configure Android

Edit `android/app/src/main/AndroidManifest.xml`:

```
<meta-data
    android:name="com.google.android.geo.API_KEY"
    android:value="YOUR_API_KEY_HERE"/>
```

3. Configure iOS

Edit `ios/Runner/AppDelegate.swift`:

```
import GoogleMaps

@UIApplicationMain
@objc class AppDelegate: FlutterAppDelegate {
  override func application(
    _ application: UIApplication,
    didFinishLaunchingWithOptions launchOptions: [UIApplication.LaunchOptionsKey: Any]?
```

```
  ) -> Bool {
    GMSServices.provideAPIKey("YOUR_API_KEY_HERE")
    GeneratedPluginRegistrant.register(with: self)
    return super.application(application, didFinishLaunchingWithOptions: launchOptions)
  }
}
```

Environment Configuration

Currently using hardcoded API URL. To support multiple environments:

Create Config File

```
// lib/config/app_config.dart
class AppConfig {
  static const String apiUrl = String.fromEnvironment(
    'API_URL',
    defaultValue: 'https://sunshineapi.onindonesia.id/api',
  );

  static const String env = String.fromEnvironment(
    'ENV',
    defaultValue: 'production',
  );
}
```

Use in Code

```
import 'package:on_indonesia_sunshine/config/app_config.dart';

String apiAddress = AppConfig.apiUrl;
```

Build with Environment

```
# Development
flutter run --dart-define=API_URL=https://dev.api.com --dart-define=ENV=development

# Staging
flutter build apk --dart-define=API_URL=https://staging.api.com --dart-define=ENV=staging

# Production
flutter build apk --dart-define=API_URL=https://sunshineapi.onindonesia.id/api --dart-define=ENV=production
```

Troubleshooting

Common Issues

1. "Flutter SDK not found"

```
# Verify Flutter installation
flutter doctor

# Add Flutter to PATH
export PATH="$PATH:[PATH_TO_FLUTTER]/flutter/bin"
```

2. "Waiting for another flutter command"

```
# Remove lock file
rm -rf ~/.flutter/flutter.lock
```

3. "CocoaPods not installed" (iOS)

```
# Install CocoaPods
sudo gem install cocoapods

# Install pods
```

```
cd ios
pod install
```

4. Map not showing

- Verify Google Maps API key
- Check API key restrictions
- Enable Maps SDK in Google Cloud Console
- Check internet connectivity

5. Location permission denied

```
// Request permission in code
import 'package:permission_handler/permission_handler.dart';

var status = await Permission.location.request();
if (status.isGranted) {
  // Permission granted
} else {
  // Handle permission denied
}
```

6. Build errors after update

```
flutter clean
flutter pub get
cd ios && pod install && cd ..  # For iOS
flutter run
```

7. Hot reload not working

- Press `R` for hot restart
- Stop and restart app
- Check for syntax errors

Security Best Practices

Application Security

1. Screenshot Prevention

```
// Enabled in main.dart for Android
await FlutterWindowManager.addFlags(
  FlutterWindowManager.FLAG_SECURE
);
```

2. Secure Storage

- JWT tokens stored in SharedPreferences
- Never log sensitive data in production
- Clear data on logout

3. API Security

- All requests use HTTPS
- JWT token in Authorization header
- Token expiration handling

4. Location Privacy

- Request permissions properly
- Only collect when needed
- Clear explanation to users

5. Code Security

- No hardcoded credentials
- API keys not in version control

- Obfuscate code for release builds

Release Security Checklist

- [ ] Remove all debug prints
- [ ] Verify API endpoints (HTTPS)
- [ ] Check for exposed API keys
- [ ] Enable code obfuscation
- [ ] Test on rooted/jailbroken devices
- [ ] Review permissions
- [ ] Secure local storage

Maintenance

Regular Maintenance Tasks

Monthly

- [ ] Update Flutter SDK
- [ ] Update dependencies
- [ ] Review security advisories
- [ ] Check API changes

Before Each Release

- [ ] Update version number
- [ ] Run full test suite
- [ ] Update documentation
- [ ] Review performance

- [ ] Check error logs

Updating Dependencies

```
# Check for updates
flutter pub outdated

# Update to latest compatible versions
flutter pub upgrade

# Update to major versions (careful!)
flutter pub upgrade --major-versions

# After updating
flutter clean
flutter pub get
flutter run
```

Version Management

Version Format

```
# In pubspec.yaml
version: 1.2.3+45

# 1.2.3 = Version Name (MAJOR.MINOR.PATCH)
# 45 = Version Code (build number)
```

Semantic Versioning

- **MAJOR**: Breaking changes
- **MINOR**: New features (backward compatible)
- **PATCH**: Bug fixes

Appendix

Dependencies Reference

UI & Navigation

- `google_nav_bar` - Bottom navigation
- `salomon_bottom_bar` - Alternative nav bar
- `animated_notch_bottom_bar` - Animated nav
- `line_icons` - Icon pack
- `page_transition` - Page animations

Network & Storage

- `http` - HTTP client
- `shared_preferences` - Local storage
- `url_launcher` - Launch URLs

Location & Maps

- `google_maps_flutter` - Maps
- `location` - Location services
- `geolocator` - Geolocation
- `geocoding` - Reverse geocoding

Media

- `image_picker` - Camera/Gallery
- `path` - File paths

Date & Time

- `intl` - Formatting
- `slide_digital_clock` - Clock widget
- `scrollable_clean_calendar` - Calendar

- `easy_date_timeline` - Timeline

Security

- `flutter_jailbreak_detection` - Root detection
- `permission_handler` - Permissions
- `flutter_windowmanager` - Screenshot prevention

Glossary

Term	Definition
JWT	JSON Web Token - Authentication token
GPS	Global Positioning System - Location tracking
API	Application Programming Interface
SDK	Software Development Kit
Onsite	Employee at registered location
Offsite	Employee at non-registered location
Clock In	Mark arrival/start of work
Clock Out	Mark departure/end of work
Asset	Company equipment or property
Geofencing	Location-based boundaries

Support Resources

Official Documentation

- Flutter Docs
- Dart Language
- Pub.dev Packages

Community

- Flutter Community
- Stack Overflow
- GitHub Issues

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