

Requirements Document for Notification Tracking Android Application

1. Introduction

1.1 Purpose

The purpose of this document is to outline the requirements for an Android application that provides notifications for a list of tables where calls have been made. The notifications should be cancelable, and the application should track the time between when the notification appears and when it is acknowledged. Additionally, metrics should be collected on user interactions with the notifications. This is for captains who can monitor the tables assigned to them.

1.2 Scope

The application will:

- Display notifications for calls made to specific tables.
- Allow users to cancel notifications.
- Track and record the time taken to acknowledge each notification.
- Collect and report metrics on user interactions with notifications.

1.3 Definitions, Acronyms, and Abbreviations

- **Notification:** A message displayed to the user.
- **Cancelable:** The ability to dismiss or remove a notification.
- **Acknowledge:** The user's action of responding to or confirming the notification.
- **Metrics:** Data collected on user interactions, such as clicks and acknowledgment times.

2. Overall Description

2.1 Product Perspective

This application will be a standalone Android app designed to assist in monitoring and managing calls made to tables within environments like restaurants or call centers. This will receive the realtime notifications from the ESP32.

2.2 Product Functions

- Display real-time notifications for calls made to specific tables.
- Enable users to cancel notifications.
- Track and log the time taken from notification appearance to acknowledgment.
- Collect and report metrics on user interactions with notifications.

2.3 User Classes and Characteristics

- **Admin Users:** Can view all notifications, track acknowledgment times, and access metrics reports.
- **Regular Users:** Can view, acknowledge, and cancel notifications.

2.4 Operating Environment

The application will run on Android devices (minimum version: Android 8.0 Oreo).

2.5 Design and Implementation Constraints

- The application should be compatible with a variety of Android devices.
- It should efficiently manage resources to prevent excessive battery consumption.

2.6 Assumptions and Dependencies

- Internet connectivity is available for real-time updates through wi-fi
- If no internet, then all devices should be connected to the same display inbuilt wifi router.
- Users will have necessary permissions to receive and interact with notifications.
- The support to receive and the signals will be made available separately.

3. Specific Requirements

3.1 Functional Requirements

3.1.1 Notification Display

- **Requirement ID:** FR-1
- **Description:** The application shall display a notification when a call is made to a table. If the call is not addressed within 2 minutes, it should make the notification red with high priority.
- **Rationale:** To alert users of new calls for bill and attention
- **Priority:** High

3.1.2 Cancel Notification

- **Requirement ID:** FR-2
- **Description:** The application shall allow users to cancel notifications.

- **Rationale:** To give users the ability to dismiss notifications that are no longer relevant.
- **Priority:** Medium

3.1.3 Acknowledgment Time Tracking

- **Requirement ID:** FR-3
- **Description:** The application shall track the time between when a notification appears and when it is acknowledged by the user.
- **Rationale:** To monitor response times for calls.
- **Priority:** High

3.1.4 Log Acknowledgment Time

- **Requirement ID:** FR-4
- **Description:** The application shall log the acknowledgment time for each notification.
- **Rationale:** To keep a record of response times for performance analysis.
- **Priority:** Medium

3.1.5 Metrics Collection

- **Requirement ID:** FR-5
- **Description:** The application shall collect metrics on user interactions, including the number of clicks and the time taken to acknowledge notifications.
- **Rationale:** To provide insights into user behavior and application performance.
- **Priority:** Medium

3.2 Non-Functional Requirements

3.2.1 Usability

- **Requirement ID:** NFR-1
- **Description:** The application should be user-friendly and easy to navigate.
- **Rationale:** To ensure users can efficiently manage notifications.
- **Priority:** High

3.2.2 Performance

- **Requirement ID:** NFR-2
- **Description:** The application should perform notifications and logging operations with minimal latency.
- **Rationale:** To provide real-time updates and responses.
- **Priority:** High

3.2.3 Reliability

- **Requirement ID:** NFR-3

- **Description:** The application should reliably deliver notifications and track acknowledgment times.
- **Rationale:** To ensure accurate monitoring and logging.
- **Priority:** High

3.2.4 Compatibility

- **Requirement ID:** NFR-4
- **Description:** The application should be compatible with Android 8.0 and above.
- **Rationale:** To ensure it can be used on a wide range of devices.
- **Priority:** Medium

3.2.5 Security

- **Requirement ID:** NFR-5
- **Description:** The application should secure user data and prevent unauthorized access.
- **Rationale:** To protect sensitive information and maintain user privacy.
- **Priority:** High

3.3 Interface Requirements

3.3.1 User Interface - Home Page

- **Requirement ID:** IR-1
- **Description:** The application shall have a clean and intuitive user interface for managing notifications.. Tables should come up as icons there in the layout should be 4*5. We need to show only the tables assigned will be enabled. Rest will be empty and blank. The bills should be in color light Blue, attention call - light green. The hovering on the icon will show the details of the notification (table number, type of call, wait duration). On double tap - it should open the popup with the details for the call and allow the user to acknowledge with a OK button.
- **Rationale:** To enhance user experience.
- **Priority:** High

3.3.2 Notification Interface

- **Requirement ID:** IR-2
- **Description:** Notifications shall be clearly displayed with relevant information (e.g., table number, alert of the type of call (Attention/Bill)., delayed for 30 sec for acknowledgement for orange, delayed for 60 sec - it should have red border and blink.
- **Rationale:** To provide users with necessary details at a glance.
- **Priority:** High

3.3.3 Metrics Interface

- **Requirement ID:** IR-3

- **Description:** The application shall provide an interface for admin users to view metrics on user interactions.
- **Rationale:** To allow performance analysis and insights into user behavior.
- **Priority:** Medium

4. Detailed Usability Instructions

4.1 Notification Usability

- Notifications should be prominently displayed on the user's device.
- Users should be able to easily identify the table number, time of the call, type of call (Attention/Bill).
- Acknowledge and cancel actions should be clearly labeled and easily accessible.

4.2 Metrics Collection Usability

- The application should track the following metrics:
 - Number of notifications displayed.
 - Number of notifications acknowledged.
 - Number of notifications canceled.
 - Time taken to acknowledge each notification.
 - Time taken to cancel each notification.
- Metrics should be stored securely and accessible through a dedicated interface for admin users.

4.3 User Interaction Flow

1. **Notification Display:** When a call is made to a table, a notification is displayed with relevant details.
2. **User Action:** The user can choose to acknowledge or cancel the notification.
3. **Metrics Logging:** The application logs the user action and the time taken to perform the action.
4. **Admin Access:** Admin users can view the collected metrics through a dedicated interface.

5. Appendices

5.1 Appendix A: Glossary

- **Notification:** A message displayed to the user to alert them of a call.
- **Acknowledgment:** User's action of responding to a notification.
- **Cancelable:** Ability to dismiss or remove a notification.
- **Metrics:** Data collected on user interactions, such as clicks and acknowledgment times.

5.2 Appendix B: References

- Android Development Documentation: developer.android.com

5.3 Appendix C: Contacts

- **Project Manager:** [Name]
- **Development Team Lead:** [Name]
- **Quality Assurance:** [Name]

This requirements document provides a comprehensive overview of the features and functionalities required for the Android notification tracking application. All stakeholders should review and approve these requirements before development begins.