Functional Specification Document

Small Good Weightlifting Competition App

1. Project Overview

The project is to build a seamless web-based app that manages the smooth operation of weightlifting competitions. The app will include different user views depending on user roles and have multiple functions respectively. The app will integrate with local network settings so that it can run without relying on internet. The MVP will include all requirements listed below.

2. MVP Functional Requirements

(1) Competition Setup and Management

ID	Functional Requirement	Description
FR1	Define a competition.	Admin should be able to define competitions specifying components. (Events, Lifts, Flights, Athletes)
FR2	Update the availability and detail of each equipment.	Admin should be able to update the status of equipment (bar, plate, collar) availability with display settings.
FR3	Admin makes any change or correction on the system.	Admin should be able to modify any change in real-time. (i.e. results, lifting orders)
FR4	Generate QR code to access the app.	Users can access app via QR code. (Need to ensure individual devices are connected to local Wi-Fi network.)

(2) Competition Operations

ID	Functional Requirement	Description
FR5	Scorekeeper/TC inputs and manage the official competition scores.	Scorekeeper/TC should be able to input and manage official record and entire competition scores.
FR6	Timekeeper/TC set and start time for each attempt and break.	Timekeeper/TC should be able to start/stop timers for attempts (60s/120s) and break (~10 min).
FR7	Set orders of athletes lifting.	Automatically set lifting orders based on the rules (maximising rest time, heavier weight)
FR8	Referees input the result of each attempt.	Referee should be able to select 'Good lift' or 'No lift' for each attempt.

FR9	Track and record athletes' lifting attempts.	The system should track and record the details of each attempt. (Result, Lift type)
FR10	Calculate bar, plate, and collar loads.	The system should calculate loadings of bar, plate, and collars based on the equipment availability.
FR11	Calculate the total score of attempts.	The system should calculate the total score of each athlete based on the scoring rules.

(3) Display and Notification

ID	Functional Requirement	Description
FR12	Display competition status and results.	The live game status should be displayed on a large screen.
FR13	Send notifications to athletes/coaches.	Notify upcoming attempts.

(4) User Access

ID	Functional Requirement	Description
FR14	Have role-based pages.	The users will view different pages depending on the roles.

3. Future Consideration

ID	Functional Requirement	Description
FR15	Set up local DNS for short URLs.	Users can access app via short and simple URLs rather than IP addresses.

4. Non-Functional Requirements

ID	Non-Functional Requirement	Description
NFR1	Usability	UI must be intuitive and easy to use for every stakeholder. Onboarding process for new officials should be quick and straightforward.
NFR2	Performance	App should respond within <1 second to every input.
NFR3	Availability	The system must be accessible during the entire duration of competition.

NFR4	Reliability	The system must process entire functions without data loss or error during the duration of competition.
NFR5	Security	Role-based login should be executed. Access to configuration and admin should be restricted.
NFR6	Scalability	The system should support connection of 20+ concurrent devices.
NFR7	Maintainability	The code should be modular and documented nicely for easy maintenance.
NFR8	Offline Operation	The app should run on router-based local network without internet via laptop as central server.

5. Proposed User Views

(1) Admin View - Competition Organiser (CO)

This view has full control over competition setup, management. Also, it has access to all other role views.

Key features
- Competition Setup (Events, Lifts, Flights, Athletes)
- Update equipment availability and display setting
- Override the data and event detail
- Network related settings

(2) Operation Desk View - Technical Controller (TC) / Scorekeeper / Timekeeper

This view is for operation desk, which technical controller, scorekeeper, and timekeeper all can use. It is to manage competition operations.

Key features
- TC / Scorekeeper: Update official competition scores
- TC / Timekeeper: Set up and start/stop timers for attempts and breaks
- TC: Set and adjust athlete lifting order
- TC: View detail of attempt and athletes

(3) Referee View

This view is to adjudicate and record the result of each attempt.

Key features
- View current attempt and athlete
- Press button for 'Good Lift'/'No Lift'

(4) Athlete / Coach View

This view will show athlete and coach their current and upcoming attempts.

Key features
- Show details of athletes and lifts
- Show status of attempts
- Get notification for next turns
- Show real-time scores

(5) Display View

This view is to display current status of attempt on a large screen.

Key features
- Current lifter and weight
- Next lifter
- Scores
- Colour, Size of equipment
- Timer
- Attempt count