



EV CHARGING SLOT RESERVATION & LOAD MANAGEMENT

ACCEPTANCE CRITERIA



Business Analyst Project Report
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PROJECT NAME: EV CHARGING SLOT RESERVATION & LOAD MANAGEMENT SYSTEM

1. Slot Reservation Module:

US-01: Search Stations – Acceptance Criteria

AC-01:

Given the user is on the home screen

When the user searches a location

Then the system must display all stations within a 10 km radius.

AC-02:

Given the user searches

When no stations are found

Then the system must display “No stations available”.

US-02: Filter Stations – Acceptance Criteria

AC-03:

Given user chooses filter options

When filter is applied

Then the station list must refresh with only matching stations.

US-03: View Time Slots – Acceptance Criteria

AC-04:

Given a station is selected

When time slots are loaded

Then system must show available, reserved, and blocked slots with colors.

US-04: Book a Slot – Acceptance Criteria

AC-05:

Given user selects a slot

When user confirms

Then system must validate charger availability and reserve the slot.

AC-06:

Given slot is confirmed

When booking completes

Then a confirmation ID must be generated.

US-05: Modify/Cancel Slot – Acceptance Criteria

AC-07:

Given user has an active booking

When user clicks cancel

Then system must allow cancellation up to 15 minutes before start time.

US-06: Auto-Expire Booking – Acceptance Criteria

AC-08:

Given slot start time has passed 10 minutes

When user has not started charging

Then system must auto-expire the booking.

2. Real-Time Charger Status Module:

US-07: View Real-Time Status – Acceptance Criteria

AC-09:

Given charger sends telemetry

When user opens station view

Then system must show current status within 10 seconds refresh.

US-08: Monitor Charger Health – Acceptance Criteria

AC-10:

Given temperature exceeds threshold

When telemetry is fetched

Then system must mark charger as “Faulty”.

US-09: Mark Faulty – Acceptance Criteria

AC-11:

Given operator marks charger faulty

When status is saved

Then system must prevent slot booking on that charger.

3. Load Management Module:

US-10: Load Calculation – Acceptance Criteria

AC-12:

Given chargers are active

When load engine runs
Then total load must be calculated within 5 seconds.

US-11: Load Threshold – Acceptance Criteria

AC-13:

Given total load exceeds threshold
When a new session request comes
Then system must delay session start.

US-12: Dynamic Load Balancing – Acceptance Criteria

AC-14:

Given multiple chargers are active
When load engine runs
Then system must distribute load proportionally.

US-13: Emergency Priority – Acceptance Criteria

AC-15:

Given emergency vehicle user
When booking or charging request comes
Then system must bypass queue and load restrictions.

4. Queue Management Module:

US-14: Auto Queue Add – Acceptance Criteria

AC-16:

Given all slots are full
When user tries to book
Then system must automatically place user in queue.

US-15: View Queue Position – Acceptance Criteria

AC-17:

Given user is in queue
When they open queue screen
Then system must show real-time queue position.

US-16: Queue Notification – Acceptance Criteria

AC-18:

Given slot becomes free
When it matches user's turn
Then system must notify user immediately.

5. Dynamic Pricing Module:**US-17: View Pricing – Acceptance Criteria****AC-19:**

Given a station is selected
When user views pricing
Then system must show updated price breakdown.

US-18: Demand-Based Pricing – Acceptance Criteria**AC-20:**

Given high demand
When prices refresh
Then pricing must increase based on rules.

US-19: Membership Pricing – Acceptance Criteria**AC-21:**

Given user is premium
When price is calculated
Then discount must be applied.

6. Charging Session Module:**US-20: Start Charging Session – Acceptance Criteria****AC-22:**

Given user plugs into charger
When charger detects connection
Then session must start after validation.

US-21: Track Charging Session – Acceptance Criteria**AC-23:**

Given session is running

When user opens session screen
Then system must show time, units consumed, and cost.

US-22: Auto Stop Session – Acceptance Criteria

AC-24:

Given battery is full or time is over
When session ends
Then system must auto-stop charging.

7. Notification Module:

US-23: Booking Confirmation – Acceptance Criteria

AC-25:

Given booking is successful
When user confirms
Then system must send SMS/app/email notification.

US-24: Slot Reminder – Acceptance Criteria

AC-26:

Given booking exists
When 30 minutes before slot
Then system must send reminder.

US-25: Charging Complete – Acceptance Criteria

AC-27:

Given charging ends
When session completes
Then user must receive completion notification.

8. Operator Dashboard Module:

US-26: View Dashboard – Acceptance Criteria

AC-28:

Given operator logs in
When dashboard loads
Then system must show real-time station metrics.

US-27: Fault Alerts – Acceptance Criteria

AC-29:

Given charger is faulty

When fault detected

Then system must show alert in dashboard.

US-28: Forecast View – Acceptance Criteria

AC-30:

Given operator opens forecasting module

When forecast loads

Then system must show next-day demand prediction.