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# EV CHARING SLOT RESERVATION & LOAD MANAGEMENT

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## ACCEPTANCE CRITERIA



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## ACCEPTANCE CRITERIA

### PROJECT NAME: EV CHARGING SLOT RESERVATION & LOAD MANAGEMENT SYSTEM

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#### **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.

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#### **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.