SMART PARKING MANAGEMENT SYSTEM

1. Define the Scope

Relevance to MIS:
This process involves **real-time data collection, storage, and analysis** to manage reservations, optimize space utilization, and generate operational reports that support strategic decision-making for both users and parking lot operators.

Objectives of the Process:

- Enable customers to **search, reserve, and pay** for parking spots online.
- Provide **real-time updates** on parking availability.
- Allow parking operators to **monitor and manage spaces**, adjust pricing, and generate usage reports.
- **Enhance decision-making** through dashboards and reports (e.g., high-demand areas, usage trends).

Expected Outcomes:

- Efficient utilization of parking spaces.
- Reduced traffic and time spent searching for parking.
- Increased revenue for operators.
- Improved customer satisfaction and user experience.

KEY DEPARTMENTS

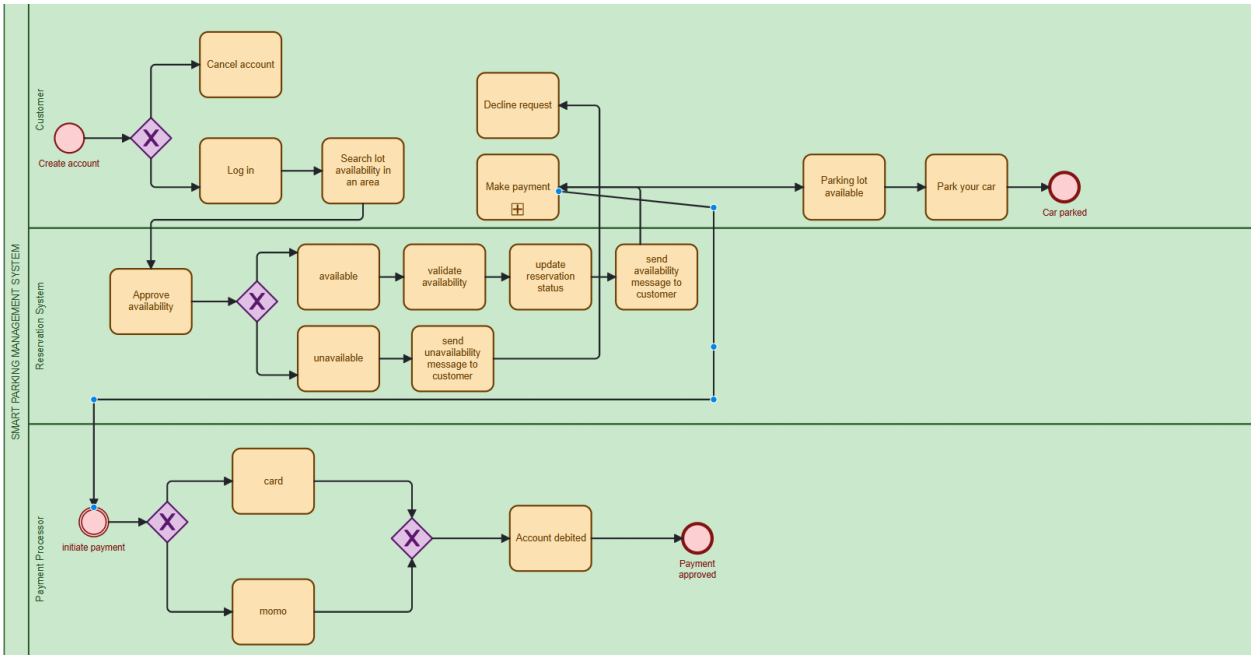
- **RESERVATION DEPARTMENT:**
  - ★ Tracks the booking and reservation process
  - ★ Validates availability.
  - ★ Records start/end times and updates reservation status.

- **PAYMENT DEPARTMENT**
  - ★ Handles secure online transactions.
  - ★ Updates payment status in the system.

2. Identify Key Entities

Entities	Responsibility
Customer (Driver)	- Creates account and logs in. - Searches for available parking spots. - Makes reservations and payments.
Reservation System	- Manages the booking process. - Validates availability. - Records start/end times and updates reservation status.
Payment Processor	- Handles secure online transactions. - Updates payment status in the system.
Parking Lot Operator	- Monitors usage via dashboards. - Manages pricing and policies. - Receives reports on occupancy and revenue.

BPMN DIAGRAM



Smart Parking Management System – Process Description

This diagram shows how the Smart Parking Management System works, with three main parts:

- **Customer (Driver)**
- **Reservation System**
- **Payment Processor**

The process starts when a customer creates an account. They can either cancel or log in. After logging in, the customer searches for available parking spaces in a certain area. This request goes to the Reservation System, which checks if a slot is available.

If a parking lot is **available**, the system:

- Validates the space
- Updates the reservation status
- Sends a confirmation message to the customer
- Asks the customer to make a payment

If the slot is **not available**, the system:

- Sends an unavailability message
- Declines the customer's request

When the customer moves to **make a payment**, they can choose either **card** or **mobile money (momo)**. The Payment Processor handles the transaction. If successful, the account is debited, and the system confirms the parking is ready. The customer can then park their car.

How This Supports MIS

This system helps support **Management Information Systems (MIS)** by:

- **Making decisions easier** – real-time updates help the system and users know what to do next.
- **Saving time** – the process is faster than doing everything manually.
- **Connecting data** – it brings together customer info, space availability, and payment in one place.
- **Helping with future planning** – the system can collect useful data for reports and improvements.

Why This Process Is Important

This process is important because it helps:

- Use parking spaces more efficiently
- Reduce traffic and waiting times
- Increase earnings by avoiding wasted spaces
- Give customers a better and smoother experience

Overall, it makes managing public parking smarter and easier.