Universidad Distrital Francisco Jose de Caldas

UNIVERSIDAD DISTRITAL
FRANCISCO JOSÉ DE CALDAS

Workshop No. 1 — Project Definition and Planning

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1 Business Model Canvas

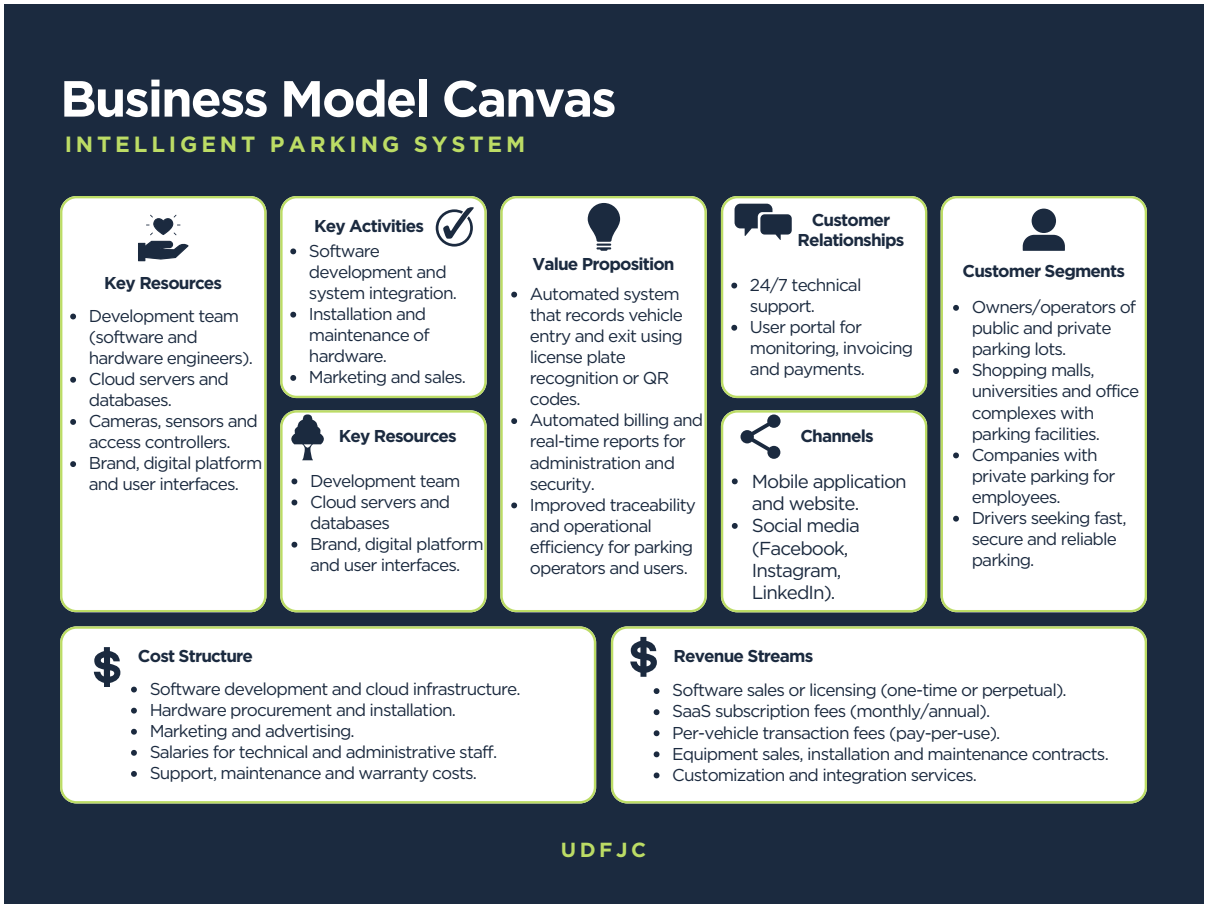

Figure 1: Business Model Canvas *Intelligent Parking System*. The model represents the nine essential blocks of the business model canvas, highlighting the value proposition, customer segments, revenue streams, key resources, and strategic activities that support the smart parking system.

2 User Stories

2.1 User Story 1:

Title: Register Vehicle upon Entry	**Priority: High**	**Estimate: 8 hours**
User Story: As a **user (who manages the system)**, I want to register the vehicles entering the parking lot so that I can keep track of the vehicles and available parking spaces.		
Acceptance Criteria:		
Given: A vehicle enters the parking lot. **When:** The user inputs the vehicle's license plate number. **Then:** The system registers the vehicle's entry and assigns a parking space.		

2.2 User Story 2:

Title: Check Parking Space Availability	**Priority: High**	**Estimate: 4 hours**
User Story: As a **user (who manages the system)**, I want to check the availability of parking spots in real-time so that I can assign a free spot to each vehicle entering.		
Acceptance Criteria:		
Given: The parking lot is being monitored. **When:** A vehicle enters. **Then:** The system displays the available spots in real-time.		

2.3 User Story 3:

Title: Register Vehicle Exit	**Priority: High**	**Estimate: 6 hours**
User Story: As a **user (who manages the system)**, I want to register the exit of vehicles so that the parking space is updated as available.		
Acceptance Criteria:		
Given: The vehicle is ready to leave. **When:** The user logs the exit time. **Then:** The system updates the parking spot as available.		

2.4 User Story 4:

Title: Vehicle Exit Notification	**Priority: Medium**	**Estimate: 5 hours**
User Story: As a **user (who manages the system)**, I want to receive notifications when a vehicle is about to exit so that I can efficiently manage parking space usage.		
Acceptance Criteria:		
Given: A vehicle is about to exit. **When:** The vehicle is nearing its exit time. **Then:** The system sends an automated notification to the user.		

2.5 User Story 5:

Title: Generate Vehicle Entry and Exit Report	**Priority: Medium**	**Estimate: 10 hours**
User Story: As a **user (who manages the system)**, I want to generate reports on vehicles that have entered and exited so that I can conduct audits and analyze parking occupancy.		
Acceptance Criteria:		
Given: Vehicles have entered and exited the parking lot. **When:** The user requests a report. **Then:** The system generates a downloadable PDF/Excel file with vehicle entry and exit data.		

2.6 User Story 6:

Title: View Parking Lot Occupancy Statistics	**Priority: Medium**	**Estimate: 8 hours**
User Story: As a **user (who manages the system)**, I want to view parking lot occupancy statistics so that I can make informed decisions about space management.		
Acceptance Criteria:		
Given: The system tracks parking lot usage. **When:** The user accesses the statistics section. **Then:** The system displays graphs of occupancy levels by day, week, and month.		

2.7 User Story 7:

Title: Manage User Roles and Permissions	**Priority: High**	**Estimate: 7 hours**
User Story: As an **administrator (owner of the parking lot)**, I want to manage user roles and permissions so that I can control who has access to the system's functionalities.		
Acceptance Criteria:		
Given: Users are registered in the system. **When:** The administrator assigns roles. **Then:** The system applies the correct permissions for each role (User, Admin).		

2.8 User Story 8:

Title: User Authentication	**Priority: High**	**Estimate: 6 hours**
User Story: As a **user (who manages the system)**, I want to authenticate securely to access my parking history so that my data is protected.		
Acceptance Criteria:		
Given: The user has an account. **When:** The user inputs their login credentials. **Then:** The system verifies the credentials and grants access.		

3 User Story Mapping

4 CRC Cards

Class	Vehicle
Responsibilities	**Collaborators**
Known its own license plate	
Known its own car type	Slot
Known its own brand	User
Known its user owner	Register

Class	User
Responsibilities	**Collaborators**
Known its own id	
Known its user type	Slot
Manage associated cars	Vehicle
Known its own brand	Register
Known its user owner	

Class	Fee
Responsibilities	**Collaborators**
Known prices per hour	
Known prices by vehicle type	User
Known special fees by user	Register
Apply discounts by user type	

Class	Register
Responsibilities	**Collaborators**
Register vehicule entry	
Register vehicule departure	Vehicle
Calculate vehicule parking time	User
Calculete cost	Fee
Apply user discounts	slot
Generate ticket	

Class	Slot
Responsibilities	**Collaborators**
Know its own id	
Know if it's free	Vehicle
Know its own slot type	Register
Reserve	Area
Get empty	

Class	Area
Responsibilities	**Collaborators**
Know its own id	
Know its own name	Slot
Know its own capacity	Register
Know its own slots disponibility	