# Software Design Description

## Design Overview

* This document describes the technical and user interface design of MIC system. It includes the architectural design, the detailed design of common functions and business functions and the design of database model.
* The architectural design describes the overall architecture of the system and the architecture of each main component and subsystem.
* The detailed design describes static and dynamic structure for each component and functions. It includes class diagrams, class explanations and sequence diagrams for each use cases.
* The database design describes the relationships between entities and details of each entity.
* Document overview:
  + Section 2: gives an overall description of the system architecture design.
  + Section 3: gives component diagrams that describe the connection and integration of the system.
  + Section 4: gives the detail design description, which includes class diagram, class explanation, and sequence diagram to details the application functions.
  + Section 5: describe a fully attributed Entity Relationship Diagram.

## System Architecture Design

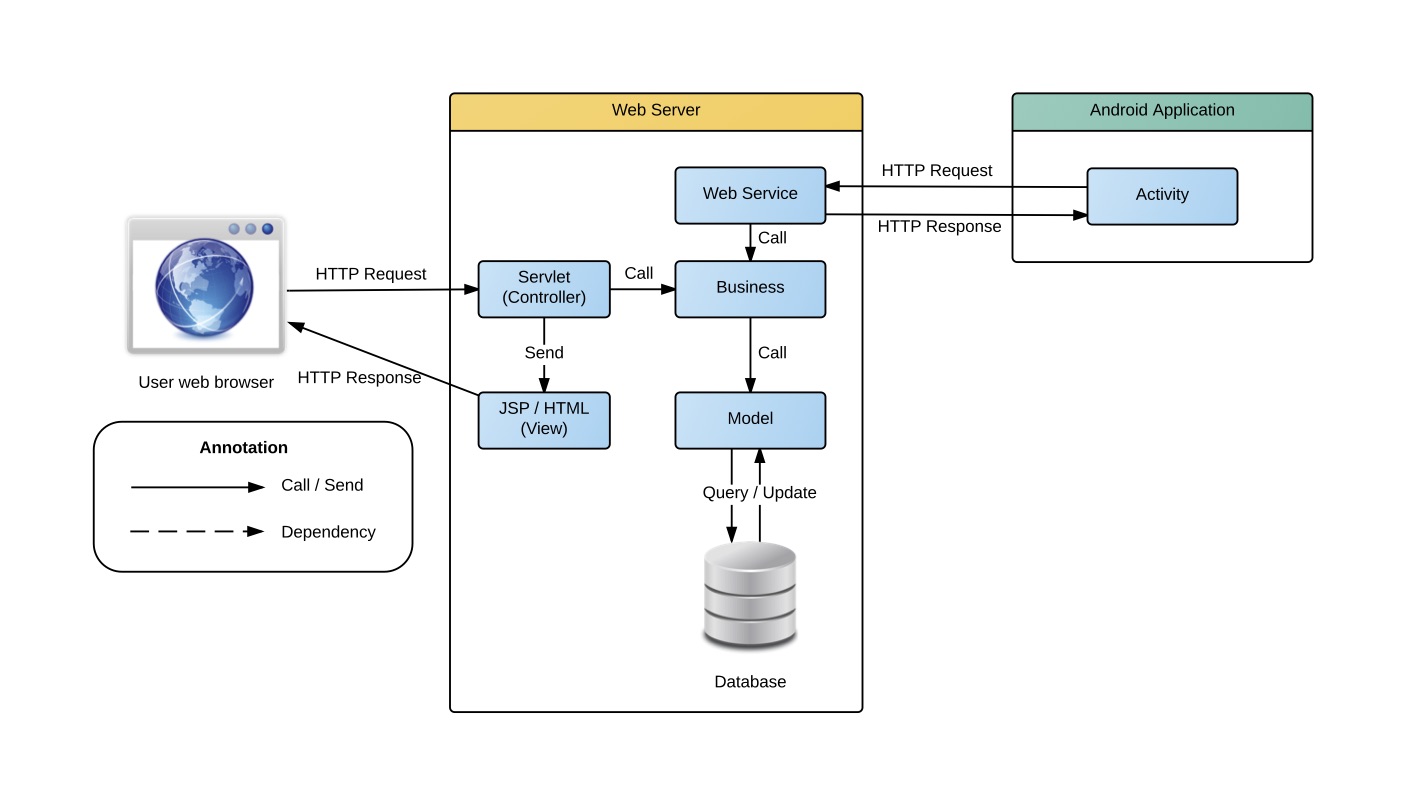


Figure System architecture design

### Web Application architecture description

In this Web Application, the system is developed under J2EE MVC architecture style.

* **Servlet (Controller)** is the parts of the application that acts like event handler to handles user interaction. Typically controller read data from a request and calls appropriate Business’s method then selects view to return to user.
* **JSP/HTML (View)** is the parts of the application that handles the display of the data. The selection of View is under control of Controller.
* **Business** is the parts of the application that do business processing to solve domain problems.
* **Model** is the parts of the application that acts like a data transfer object between the system and database.
* **Web Service** is the parts of the application that acts like event handler for web and mobile communication via REST method.

### Mobile Application architecture description

The application is developed as an Android native application. In general, the application architecture conforms to Android architecture.

* **Activity** is the basic core of an android application that handles user input,create thread to run asynchronous tasks, send request and receive data from server via web services ...

## Component Diagram

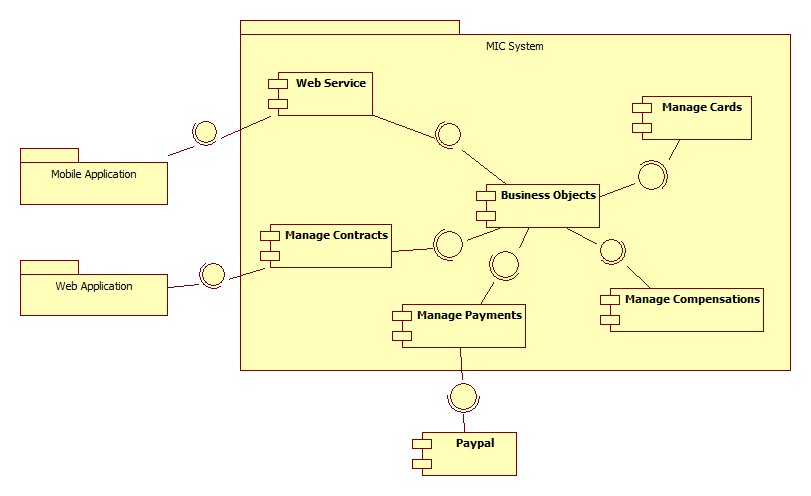


Figure 2 Component Diagram

|  |  |
| --- | --- |
| Component Dictionary: Describes components | |
| Web Application | Web application package: View, Controller |
| Mobile Application | Mobile application package |
| Web Service | Includes all API controller of the system |
| Manage Contracts | Business logic to manage contracts |
| Manage Cards | Business logic to manage cards |
| Manage Compensations | Business logic to manage compensations |
| Manage Payments | Business logic to manage payments |
| PayPal | Handle payment process with PayPal API |

Table 1 Component Dictionary

## Detailed Description

### Class Diagram

### Class Diagram Explanation

### Interactive Diagram

#### Web Application

#### Mobile Application

## User Interface Design

### Web application Design

### Checker Mobile Application Design

### Printer Mobile Application Design

## Database Design

### Logical Diagram

### Data Dictionary

## Algorithms

### Contract State Chart

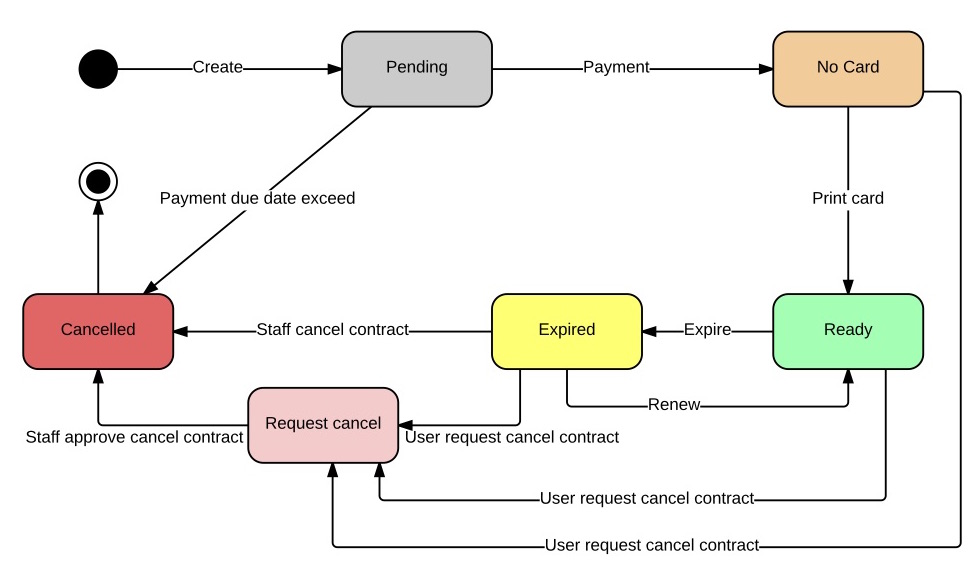


Figure Contract State Chart

|  |  |
| --- | --- |
| State Dictionary: Describes States | |
| Pending | The contract is created and do not have payment |
| No card | The contract had have payment but have not assigned to a card |
| Ready | The contract is assigned with a card and ready to use |
| Expired | The contract due date is exceed and no longer valuable |
| Request cancel | The contract is requested to cancel by customer |
| Cancelled | The contract is cancelled and no longer valuable |

Table Contract State Dictionary