# Systematic Process of Smart Mobile Application

**Muthla Hilal Al Rubaiey**
Computing Department
Middle East College, KOM
Sultanate of Oman
15f14032@mec.edu.om

**Muhammad Saqib**
Senior Lecturer
Computing Department
Middle East College, KOM
Sultanate of Oman
msaqib@mec.edu.om

## Abstract

This review paper aims to create and design a systematic procedss of a mobile application for the Integrated Industrial City of Sandan. It has the advantage of facilitating the communication process between employees and customers for the benefit of both parties. The application provides the city with a 3D format for employees, as it makes it easy for employees and customers to navigate the city as a whole and see its services. The application data used was collected through an interview with the chairperson of the media committee, with the information systems executive, and through a questionnaire that she provided to clients in addition to the company's website.

**Keywords:**
Mobile Application; 3D Device; Smart City; Appliances

## Introduction:

Smart mobile application for Sandan City Industrial. The program will show the Sandan city Industrial in 3D mode, which solves many problems this company faces. Where the application combines many features in one place, such as providing sufficient information about that company, preserving customer and employee time, and facilitating communication between customers and employees. Smart mobile application for Sandan City Industrial. The program will show the Sandan city Industrial in 3D mode, which solves many problems this company faces. Where the application combines many features in one place, such as providing sufficient information about that company, preserving customer and employee time, and facilitating communication between customers and employees.

## Problem Statement:

We are creating a mobile application for customers, employees, and those working in Sandan Industrial City as I have chosen Sandan Industrial City as it does not have an application with the availability of many jobs. The application comes to help customers and employees to know all the information about Sandan Industrial City, such as the integrated Sandan Industrial City display in a three-dimensional format for the entire city where the investor outside the Sultanate can see the city and wander inside, and the tenant who wants to rent the apartment can view the apartment dimensions and know its shape and in Anywhere.

The company is now facing some difficulties, such as the arrival of some investors outside the Sultanate to the city, as well as visitors who roam the entire city because of their difficult time.

So where the user can log in by using the user name and password, where before that the user must log in to be able to log in to the application, after that the user will be shown a complete city display page where the user can roam inside the city and choose the desired place which the user wants to benefit from its services and the user can Take advantage of the business categories in the application where there is the world of cars (tires and accessories - car mechanics - car electricity - car accessories - brakes and car spindles - auto parts), the world of construction (decors, paints and home furniture - doors and windows - carpentry and Metal fabrication - artificial stone and granite), the Boulevard (exchange and money transfer offices - banks - car purchase and insurance loans - restaurants, cafes and bakeries - tourism and travel - government departments and offices), community facilities (multi-use hall - mosque - station Fuel - shopping center - transportation services to and from within Sandan - smart wastewater management), also the user can rent, buy or rent housing units as there is in the tide Soft 47 car showroom. The user can view the cars in 3D, buy them, and summarize all their transactions in one application inside the city. The user can also give feedback about the application and customer service in the application. Employees in Sandan Industrial City can also use the city in many things, such as seeing the service that the company is working on showing the user and he can contact the customer through the number registered in the application and he can respond to the user's comments and respond to their inquiries. The user can also update, delete and add all the things included in the application.

## Literature Review:

My project revolves around creating an integrated application for the integrated Sandan Industrial City by displaying the entire city in one application and displaying the city in 3D, where the investor outside the Sultanate can see the city and wander within it, the tenant who wants to rent the apartment can view the dimensions of the apartment and know its shape anywhere. The company is now facing some difficulties, such as the arrival of some investors outside the Sultanate to the city, as well as visitors who roam the entire city because of their difficult time.

When I searched the Internet for industrial cities applications, I found an official application for the Saudi Authority for Industrial Estates and Technology Zones (MODON). Where it is possible in this application you can search for Saudi factories, types of industries and you can search for the industrial land allocated to you, also you can see methods of communication and discover industrial cities with maps, and you can also participate in the application with comments and pictures. Also, school supervisors request a schedule of school visits to factories, and everyone can also easily access many of the information of interest to the individual available on the official site of MODON and cities accounts in the famous social networks. Also, there are some services in the application, such as ordering a ready-made factory, also integrating the emergency reporting service and adding other electronic services. (*MODON APP*, 2019)

MODON application is similar to the application that I will create in the idea of creating an application for industrial cities, but the application of (MODON) and my application differ as my application does not include all industrial cities, but rather the application of Sandan Industrial City, which is an integrated city also reviews it in a three-dimensional format where the visitor and user can Seeing the city and moving in it as if it is already inside the city and also take advantage of the services provided by the city while the (MODON) application includes all industrial cities and industrial lands, reviewing a map of sites only and factories, and also taking advantage of other services.

## Research Methodology:

First, the methodology is a contextual framework for research, and it is a consistent and logical outline based on opinions, values and beliefs, that directs the choices made by researchers or users. It contains a theoretical analysis of the set of principles and methods related to the branch of knowledge so that the methodologies used by different disciplines differ depending on their development. This creates a continuum of methodologies that span across competing for an understanding of how best to understand knowledge and reality. This places the methodologies within comprehensive philosophies and approaches. A methodology is not established to present solutions but instead, the methodology provides a theoretical perspective to understand the method or set of methods and best practices that can be applied to the research questions.

## Scrum Model

Scrum is commonly used by the software development team, around 70% of the software team. use scrum or Scrum hybrid. Scrum extended to different business jobs containing marketing and information technology. Scrum is part of agile. The leadership team also outsourced for management practices to agile private scrum. It follows the agile principles and Scrum methodology, however, it contains many specifications and definitions in particular regarding software development, despite the development of agile software, but it has become the preferred framework and best choice for managing agile projects generally and sometimes referred to clearly as scrum development or scrum management. Scrum addresses the complexities and difficulty of the job through making the information transparent and clear so that programmers can readily search and adapt for the problems according to the current circumstances, not expected. Transparency of terms and standards linked with Scrum is required to make sure that what is delivered is what was expected. The most widespread scrum events are sprint retrospective, sprint review, sprint planning and daily scrum or stand up. (*What Is Scrum Methodology?,* 2021)**.**

## Waterfall Model

It is a project management methodology that consists of no less than 5 to 7 phases, followed by a minutely linear arrangement where a phase cannot start without the stage that precedes it. The waterfall curriculum contains several stages, including:

**Requirements**: Which gather all customer requirements until the product is finish or complete.

**Design**: Stage is split into sub-stages for logical design stages and physical design. It is in the sub-stages of logical design that possible solutions and their theory are presented. While the sub-stage of material design, plans and ideas are converted into concrete specifications .

**Implementation phase**: Is when the programmers comprehend the specifications

and requirements from the previous stages .

**Verification:** Stage in taking the stage, the customer reviews and check the product to make sure that it meets (Fulfilled) the requirements stipulated before the begin of the project.

**Maintenance**: in this stage, the customer uses the product regularly during the maintenance phase and discover errors. (*SDLC - Waterfall Model - Tutorialspoint*, 2021)
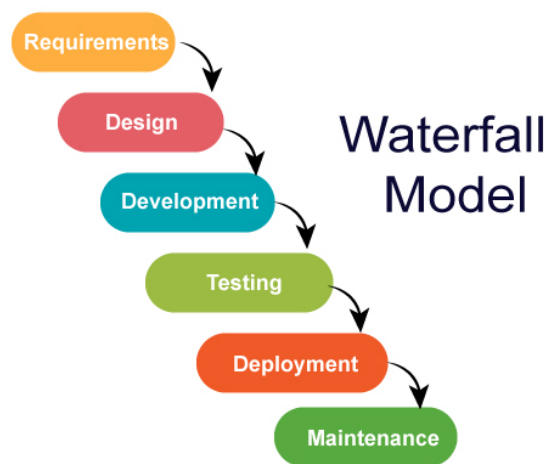


Figure 1: [Google Images, 2021]

## RAD Prototype model

One of the major benefits of the development method RAD the speedy applications in that it brings companies and information technology together, which promote the development process Iterative and cooperative. Another advantage is that they give or provides projects of small plots that are easy to analyze and control project risks. It consists of many phases which are data modeling, business modeling, application modeling and process modeling.

There are four phases for RAD modeling :

### 1. Business modeling

It revolves around the flow of information on different channels, main and essential stage awareness for the development of rapid applications. Where analysis and planning are usually done, a complete picture of the business process jobs also can be gained. It must contain purpose management, work plan and project definition, and through which the application requirements are identified or recognized.

### 2. Data modeling

In it, the information collected is reviewed at the stage of gathering information to determine and define the group that suits the application from another stage and assists in determining the structure of developing a system RAD of the user feedback.

### 3. Process modeling

Modeling processes in which coding process, picking, and actual integration take place, that means any improvements or changes to the data are determine in the stage in which the business information flow is established. Many times, as necessary, alternatives are identified, so project objectives are identified.

### 4. Application modeling

In which the application is developed and coding is done, thus data models and operations are turned into prototypes. Programming data is then transferred to a live production environment for comprehensive testing. Each one of model is independently selected over repeat. Furthermore, reduces the risk of any major problems as almost all programming components are selection. (*What is RAD Model? Phases, Advantages and Disadvantages*, 2021).
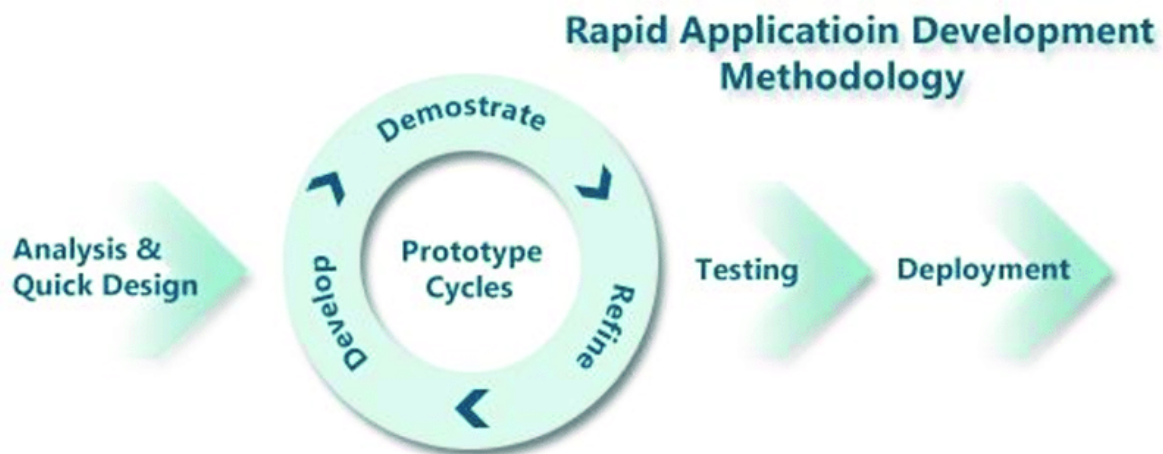


Figure2: [RAD, 2021]

We have chosen the waterfall methodology because it is more accurate in the application work, and we cannot start another step without the first step being complete, which facilitates identifying risks for the project and solving problems quickly and where the final image is in the best way.

**How the model Apply my application?**
**Requirements:** The requirements phase helps collect all the requirements of customers, employees and city officials until the application is completed or completed.

**Design:** The design stage helps to design the application in terms of logical-physical design where possible solutions are presented in the logic design and the transfer of ideas to concrete specifications

**Implementation:** The implementation stage helps to know the application programming (such as the programming language and the program used to make the application).

**Verification:** The verification phase helps to verify the application before starting to use it and to ensure that it meets the requirements included in the project.

**Maintenance:** The maintenance phase helps to discover errors and solve them by starting over with the stages.

# Research Design or Prototype / Framework ( Diagram(s) – Justification)
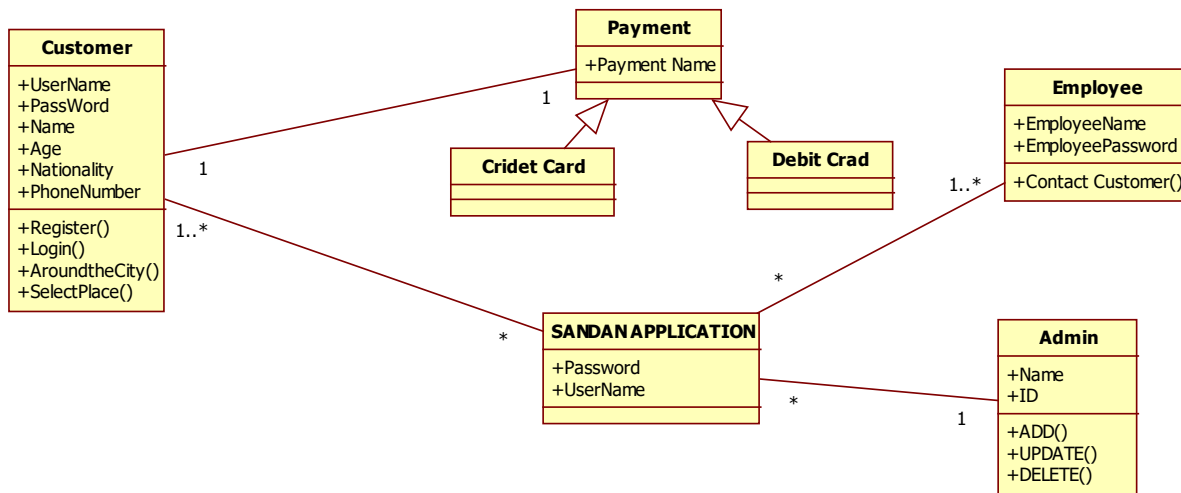
**Class Diagram:**



Figure 3: [Report, 2021]

In this diagram, I choose 5 class which is customer, Sandan Application, Admin, Employee and Payment. One customer which has many attributes and operation chose one payment (credit card or debit card). One or Many Customer can use the Sandan application. Also, one or many Emloyee use the Sandan Application. One Admin uses the Sanndan Application.

**Coding/Analysis &**

Screenshot of initial the

Welcome Page shown for
Admin when open the

**Findings/Testing:**

Prototype

the Customer, Employee and
Application.



Shown for the Customer after Home page to give the information and Can Open the Application



Shown for the Customer and Employee to login the application

## Conclusion & Recommendations:

In this review paper I have benefited to create and design a systematic procedss of a mobile application for the Integrated Industrial City of Sandan. It has the advantage of facilitating the communication process between employees and customers for the benefit of both parties. Which the application provides the city with a 3D format for employees, as it makes it easy for employees and customers to navigate the city as a whole and see its services. The application data used was collected through an interview with the chairperson of the media committee and to benefit from some external experiences.

## References:

Sandan.om. 2021. *Madinat Sandan – Sandan*. [online] Available at: <https://sandan.om/madinat-sandan/madinat-sandan/> [Accessed 18 January 2021].

2021. [online] Available at: <https://www.researchgate.net/figure/Rapid-Application-Development-RAD_fig1_316546533> [Accessed 17 January 2021].

Tutorialspoint.com. 2021. *SDLC - Waterfall Model - Tutorialspoint*. [online] Available at: <https://www.tutorialspoint.com/sdlc/sdlc_waterfall_model.htm> [Accessed 18 January 2021].

Guru99.com. 2021. *What Is RAD Model? Phases, Advantages And Disadvantages*. [online] Available at: <https://www.guru99.com/what-is-rad-rapid-software-development-model-advantages-disadvantages.html#:~:text=RAD%20Model%20or%20Rapid%20Application,a%20short%20span%20of%20time.> [Accessed 18 January 2021].

workbreakdownstructure.com. 2021. *Work Breakdown Structure*. [online] Available at: <https://www.workbreakdownstructure.com/> [Accessed 14 January 2021].