**COMSATS University   
Park Road, Chak Shahzad, Islamabad Pakistan**

Proposal for FYP

**Smart Construction Manager**

***By***

**Talha Ejaz CU/SP18-BCS-161/ISB**

**Waleed Butt CU/SP18-BCS-170/ISB**

***To*Mr. Ashfaq Hussain Farooqi**

BCS-6-SP18

Date: 12/17/2020

*Bachelor of Science in Computer Science (2018-2022)*

# Introduction

A two-person team aspiring to develop a web and mobile based system to ease the process of construction. The basic idea is to provide the owner of the property with the ease of access to interact with construction companies and government bodies (CDA, WAPDA and Sui Gas etc.).

# General Idea

The process of construction is very lengthy. First, we have to submit the approval of land to development authorities. Which right now is done by going to their offices and applying by hand. You have to wait for approval, which takes weeks. You can start the construction procedure afterwards, but it is hard to find the labor for construction. Then you have to wait for months to get the government services like Electricity connections and Sui Gas connections. We are planning to automate the process by creating a system with three major actors.

First actor will end users. Here user will sign up and then act as a buyer or seller. The buyer will search for sellers and hire them for different purposes. Seller can be anyone and provide any service related to construction like Contractor, Welder, Carpenter, Electrician etc. (Similar to OLX)

The second actor will be development authorities. End user will send the blueprint to the respective Development Authority of their area (like CDA in Islamabad). This blueprint will be received by development authorities in their portal which will be accessible by their workers only. The authorities will validate the blueprint and respond to end user confirming the approval for construction.

Third actor will be government bodies. When the site is approved for construction. The end user now can request for Electricity connections, Gas connections from WAPDA and Sui Gas, respectively. This will follow the same procedure as above. The end user will send the application to the government institutions. The government institutions will have their own portal to manage requests. They will respond to end user whether the end user can get the connection or not.

# Tools and Technologies

For the intention cited-supra, the design to be implemented in our project is multi-tier architecture, covering a variety of aspects in regard with the technical implementations. Some of the considered technologies include

* Web (Html, CSS, Bootstrap & JS)
* React Native/ Flutter
* PHP
* AJAX
* Node.js
* SQL
* MongoDB/Firebase
* Java
* Computer Graphics

# Quick Value Additions

## Objective:

To develop a **One Window Solution** for the construction process of housing in the state and also the keeping in view the incumbent government’s housing and construction policies & packages to minimize the time & effort for the construction process and ensure transparency. This solution also addresses unexpected turn of events in the fiscal policies caused by the global pandemic (COVID-19). It also ensures the safety of people regarding the SOPs. **Smart Construction Manager** is an all-rounder application addressing basic house construction needs.

## Policy of Incumbent Government on housing:

<http://www.mohw.gov.pk/policiesDetails.aspx>

<http://nphp.com.pk/housing-policies/>

## Construction process

* Soil analysis of plot
* Levelling of site
* Designing & Layout
* Excavation
* PCC (PLATE CEMENT CONCRETE)
* Foundation
* Filling the foundation
* DPC (DAMP PROOF COURSE)
* Plinth beam
* Column
* Brick Masonry
* Lintel over door and window
* Slab
* Doors & Windows
* Electricity and Sanitary
* Plastering
* Tiles and marbles
* Painting

The afore-mentioned points provide a general view of the construction process which includes certain kinds of labor, Government organisations, outsourced builders etc. Smart Construction Manager will provide the easy solution to all these problems.

## Process flow:

The following process will ensure smooth inter-departmental & inter-organizational communication with users. It will also address any endogenous as well as exogenous issues.

### Government Organizations & Construction companies:

* User will be provided an interface for Government organizations & companies.
* User will submit request to respective organization (depending upon the location of project) & The construction company.
* The authorities and the industries will accept the request.
* Design and Layout will be sent by user.
* After review authorities and industries will generate the response.

### Foreign Pakistani & Construction companies:

* The overseas Pakistani can have access to the same utilities as a local Pakistani.
* His registration will be done through his ONIC (Overseas National Identity Card)
* He can strike a deal with any construction company of his choosing, however, to ensure transparency a local relative might also be registered to handle the project physically.
* The process will be same as mentioned above.

### Local Pakistani & Construction companies:

* Registration process will be same as heading 5.4.1.
* NIC will be used for registration here.
* Further process same as 5.4.2

### Builders and Labor:

* Builders can hire their own labor or outsource the project
* The different kinds of labor mentioned in the construction process heading 5.3 will be hired.
* The construction process 5.3 will be followed by the builders.
* Incase owner wants to fire the builder he has to submit the subsidy to the company depending upon the duration builders were hired.

# Conclusion

The afore-mentioned points summarize the general aspects of our FYP. And We are optimistic that under your capable supervision we will be extremely productive.