Proposal of Final Year Project

# Smart Family

## A Perfect Private Platform for Families

Version: 0.8

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Signed:

Sajid Ali Khan

## Abstract:

This Proposal is the Detailed Description of Smart Home Platform that provide a private platform for families. That why this App is required, why people use it during their day to day activates. What are the dimensions of this App and in which circumstances people utilize it for perfect usability…

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# Introduction

This document will propose all features and procedures to develop the Smart Family App for all kinds of families around the globe.

This document specially containing details about objectives, scope limitation, process model, primary requirements, development, possible project risks, and finally monitoring and reporting mechanisms.

In this modern world, life become fast with time. People get busy in to their day to day activates and gap is increasing in families and among families with time. Even in a family people unable to talk to each other for short and long time due their busy schedules and activities. According to current circumstances a horrible future can be predict where people will able to full filled their basic family needs with machines and robots and passed their lives without even see their other family members.

The Smart Family App will destroy the gaps b/w interfamily as well as intra-family by increase social communication among family members. It will provide such a great platform that involve all family members in a loop where family members perform their day to day tasks by communicating with each other’s.

People will able to perform household tasks peacefully and hassle free. E.g. the house is tidy. The pets are fed. The kids are studying quietly. All without a nudge from people! Housework or homework.

People will encourage and improvements. E.g. motivated kids are successful kids. When people introduce responsibility from an early age, people improve their child’s chance of future success. With this App, kids build self-esteem while completing tasks and achieving goals.

People award their family members under their supervision. E.g. create incentives for the kids. Pocket money, screen time or a family trip, App's fun rewards system allows parents to get more done without nagging.

People can keep talking with each other. Stay connected people when they’re apart. A quick message, a silly joke, or a simple hello, The App is family's private communications hub. Built in reminders and notifications, keep everyone in the know with minimal effort.

The concept here is that a gentle form of gamification can motivate kids to do chores and take responsibility. Here, parents can remember to reward their kids for working hard.

People can simplify their shopping. E.g. easily add items and swipe them off as people load up their cart. Save time at the supermarket and never forget the milk again.

People can better manage their Kitchen and Food. E.g. Manu and family needs etc…

People can manage house hold tasks include creating small home related tasks and assign to yourself or other available member according to their schedule on planner. One member can reassign to other family members accordingly to their plan.

So these are the basic features of this great platform. After the first launch of the App further more innovative features will also be added accordingly with time that will make people lives great. And then a family will become a family in true meanings…

### Objectives and Concentrations:

* Corporate between the data stored in the cloud for users. To deal with family intercommunication as well as intra-communication. (Connection process).
* Create strong and secrete data base that allow for any connection in a secret way, to prevent any outside or inside attacks.
* Specify a privilege for each user to allow each person use this App to create his own family environment. And have a complete control on his family activities.
* Allow each user to create family log and perform activates through it.

### Scope and limitations:

* Smart Family App will be designed for all type of families around the globe…
* The App handles all the operations and events. Manage all activities occur in family.
* Allow family members to see or display activates and performance.
* The type of activities can be manage in it.

### Project Organization:

|  |  |  |
| --- | --- | --- |
|  | **Title** | **Description** |
| **1** | Project Supervisor | * To manage all processes in the project |
| **2** | Software Designer | * To design the models and diagrams that helps the programmer in implementation phase. |
| **3** | Testers | * One from outside the team and the other from the inside the project team. |
| **4** | Programmers | * Professional in .NET and SQLite, Azure… * To programming the processes of the project. |
| **5** | Software Analyst | * To analyze the requirements of smart family App according to circumstances. |
| **6** | Writer | * Collects drafts from each member. * Rewrite and reformate the documents come from each member. * Have good print skills. * Have a good skill to correct grammars of statements. |

### Risk analysis and risk planning:

|  |  |  |  |
| --- | --- | --- | --- |
| **Project Risks:** | | | |
| **Risk** | **Probability** | **Effects** | **Risk planning strategy** |
| The lack of technical experience can cause a big disaster during the development. | low | Serious | Manage some great jumpstart and learning sessions in the start to make hands on experience. Further learning sessions also organize during project whenever it’s required. |
| The methodology to solve the problem can't work in a proper manner. | high | Serious | Must be study more than one methodology to minimize this risk. |
| Budget does not enough or there is no budget. | low | Catastrophic | Being the part of Microsoft utilize the facility of Microsoft Bizspark and other free tools available. |
| HW requirement during Project. | Low | Catastrophic | As the Project is cloud base and run on Windows Phone so no external hardware requirements are there. Just need to maintain the devices… |
| **Product Risks:** | | | |
| **Risk** | **Probability** | **Effects** | **Risk planning strategy** |
| Packages and Development tools does not enough. | low | Serious | Being the Part of Microsoft all types of tools are already available that are required during the project. Perhaps any advance level subscription can also be available on demand. |
| Can't found the suitable components. | low | Tolerable | Programmer must have professional programming skills to write a new code, which minimize this risk. |
| **Business Risks:** | | | |
| **Risk** | **Probability** | **Effects** | **Risk planning strategy** |
| Can't found the suitable place for meeting the team. | high | Tolerable | Monitoring the work by E-platforms every day. To avoid this risk. |
| Damage the electricity generator. | high | Serious | There is a spare location to avoid this risk. |
| Marketing the product system. | low | Catastrophic | As the Project is innovative so Microsoft will fully support to Market the Product. |

### Hardware and software Requirements:

|  |  |  |  |
| --- | --- | --- | --- |
| **Hardware Requirements:** | | | |
| **Item** | | **Item Count** |
| Computers (laptop) resent version | | 2 |
| ADSL Internet provider | | - |
| Electricity Generator | | - |
| Office | | - |
| External HD | | - |
| Team needs | | - |
| **Software Requirements:** | | | |
| **Item** | | **Item Count** |
| Microsoft Azure | | - |
| Microsoft Visual Studio | | - |
| Microsoft SQL | | - |
| Universal Windows App Platform | | - |
| XAMARIN | | - |
| Web Services | | - |
| **Another Requirements:** | | | |
| Foods and drinks for ( breakfast/ lunch/dinner) | - | |

### Work break down:

* Project supervisor contracts with the user who need this App and write a project plan. ( three days)
* Deliver the draft of project plan documentation to writer to rewrite the documentation and rewrite the document. (three days)
* Then gives documentation of project plan to SW analyzer to do more analysis to verify the SRS document requirements. Then delivers SRS document to writer. (twenty-six days)
* SW designer gives the SRS document and start to design the diagrams and models that helps the programmer to implement the project. Then delivers the draft design document to writer. (Forty-seven days)
* The two programmers take a partition of the project to start an implementation. (Sixty days)
* Throw the implementation the inner tester make validate the system and delivers his report to writer (sixteen days)
* After finish the project and throw the implementation phase the outside tester validate the system and write his document then deliver to writer. (sixteen days)
* The final report is ready now. (Nine days)

### Monitoring and Reporting Mechanisms:

The Supervisor should monitor all activities in the project via minimize, avoid the risks or via management control as follows:

* Put a table for all SW requirements and print in percentage how much finish.
* Using software programming to monitor programmer's progress.
* Using spyware profile to monitor the team.
* Using software that calculate how many lines written per hour.
* Monitoring the risks as follows:
  + Change the probability and effect.
  + Delete risks or add a new one depends on the working on project.

### Project Supervisor approach:

* **Software Process Model:**

To solve an actual problems in an industry, software developer or a team of developers must integrate with a development strategy that include the process, methods and tools layer and generic phases. This strategy is often referred to a process model or a software developing paradigm.

Management is the proactive management of risks throughout the software development lifecycle is important for project success.

Risk management is a series of steps whose objectives are to identify, address, and eliminate software risk items before they become either threats to successful software operation or a major source of expensive rework.

The software industry is fraught with failed and delayed projects, most of which far exceed their original budget. A Software Company reported that only 28 percent of software projects are completed on time and on budget. Over 23 percent of software projects are cancelled before they ever get completed, and 49 percent of projects cost 145 percent of their original estimates. In hindsight, many of these companies indicated that their problems could have been avoided or strongly reduced if there had been an explicit early warning of the high-risk elements of the project. Many projects fail either because simple problems were reported too late or because the wrong problem was addressed.

Teams can choose to be reactive or proactive about these problems. Reactive teams fly into action to correct the problem rapidly in a crisis-driven, firefighting mode. Without proper planning, problems often occur late in the schedule. At this point, resolving any serious problems can require extensive modification, leading to big delays. Proactive teams begin thinking about risks even before technical work is initiated. Their objective is to be able to avoid risk whenever possible, to solve problems before they manifest themselves and to respond to problems that do happen in a controlled and effective manner.

# Software Requirement Specification

### Preface:

This document has been written to apply a new version of SRS Software Requirements Specification depends on IEEE-STD-830-1998 standard. So, one must compare this document with this standard.

This is the first version for Smart Family App.

This document is the basic intended for any individual user, developer, tester, project manager or documentation writer that needs to understand the basic system architecture and its specifications.

### Preface:

The purpose of this SRS document is to write the functional and non-functional user or system requirements that represent the characteristics of On-Line Exam System.

The scope and limitation of this system is:

* A Platform that increase interfamily and intra-family activates.
* Provide platform to discuss anything instantly to get updated or share anything or getting feedback from family members.
* Track Kinds routine. Monitor and manage kinds activates by their performance. Reward kids according to their activities.
* Manage the financial activates. Take record of all financial activates in family hence manage things accordingly. E.g. Utility bills and shopping etc…
* Mange household tasks and assign activates and make everyone in family on the board…

### Glossary:

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### User Requirements Definition:

The user requirement for this system is to make the system fast, flexible, less prone to error, reduce expenses and save the time.

* Everything will be manage according to time. With time new activates will be performed through app.
* A system will be giving points accordingly by checking the users activates and give the result as soon as relevant users finish their tasks.
* An activity report will be generate to the owner of every family to analyze the statistics of their family.
* The system will have records of all users and family owners that can be access to the system which can be used only for the authorized person.
* The system should be more secure for management user records and more reliable to work at any conditions.

### The products and process features:

This system must be designed as user required. So, the complete requirement must be found:

* **Quick scheduling:**

The system helps the family member to generate the automatic activates and events instead of manually or using papers. Which save a time for planning things, checking and for input activists. Also, family members can see the performance of each other when he login as an individual to the system.

* **Immediate results and solutions:**

When the user finishes his activity and mark that activities as done, the system checks his activities which he done and compared with the requirements which others demands from him. And the system saves the performance and activates and assign appropriate points to everyone. And send a report to family owner to see the performance of his family members.

* **Easy to store and retrieve information:**

Rather to save the information on a papers or in separate sheets. There are a DBM to store and retrieve the information needed by the family owner or family member or any other user according a report generated by the system.

### Top Features of Platform (Overview) -> Feedback Required:

After the long discussion. Following features are shortlisted for the first version of the App. (Please take a review and provide your important feedback upon every feature and recommend some improvements if possible).

* User Registration (User Roles)
* User Interaction (Family)
* Family Profile
* Home Budget :: Shopping :: Trip :: Entertainment :: etc...
* Event Planning
* Personal Activity
* Task Creation
* Budget
* Kitchen / Entertainment
* Let's Talk
* Family Tasks
* Event
* Points
* Kids
* Event / Activity Schedule
* Family Activity
* Family Motivation

...

### Backend Techniques (Overview) -> Feedback required:

After the long discussion. Following techniques are finalized for the development of App. (Please take a review and provide your important feedback upon every technique and recommend some improvements or better technique that can be replaced it).

* Azure Web Services.
* Cloud Services. (Database, data storage).
* Web Admin (Admins Controls, User Data Control, Promotion Website, etc…)
* Native App :: Interface :: Backend Integration with services :: Web Admin Panel...

### System Architecture:

Smart Family App Front End

Login

Role checking

Form & Menu Manager

Data Validation

Security Manager

Azure Server Appointment Manager

Data Import & Export

Report Generation

Azure Services for Management (include DB)

### Functional System Requirement:

This section gives a functional requirement that applicable to the Smart Family App.

There are three sub modules in this phase.

* Family Member module.
* Family Owner Module.
* General Users Module.

The functionality of each family member is as follows:

* **Family Member Module**: The family member user will logon to the app and take appropriate actions. He can also check his previous performance and details. The user will get result immediately after the completion of an activity.
* **Family Owner Module**: The database is prepared & loaded into the software. Selection for family activities can be done with time. The results will be displayed immediately after completion of an activity.
* **General Users Module**: The general user will able to see the publically shared activities from other users. Also can communicate with others known users accordingly.

The features that are available to the Family Owners are:

* The family owner has the full-fledged rights over the Services.
* Can create/delete an account.
* Can view the accounts.
* Can change the password.
* Can hide any kind of features from the both of users.
* Insert/delete/edit the information of available on Services.
* Can access all the accounts of the family members/users.

The features available to the Family Members are:

* Can view the different categories of activates available in the family.
* Can change password.
* Can view their points.
* Can view the various activities and events.
* Can view and modify its profile but can modify it to some limited range.

The features available to the General Users are:

* Can view the different categories of activates publically conducted by other users.
* Can change password.
* Can view their points.
* Can view and modify activities.

### Non-Functional System Requirement:

### Performance Requirements:

Some Performance requirements identified is listed below:

* The database shall be able to accommodate a minimum of 10 Million records of users.
* The app shall support use of multiple users at a time.

### Safety Requirements:

The local database may get crashed at any certain time due to virus or operating system failure. Therefore, it is required to take the database over cloud. By using Azure Database activities this issue will be easily solve…

### Security Requirements:

Some of the factors that are identified to protect the software from accidental or malicious access, use, modification, destruction, or disclosure are described below. Keep specific log or history data sets

* Assign certain functions to different modules
* Restrict communications between some areas of the program
* Check data integrity for critical variables
* Later version of the software will incorporate encryption techniques in the user/license authentication process.

Communication needs to be restricted when the application is validating the user or license. (i.e., using https).

### Software Quality Attributes:

The Quality of the App is maintained in such a way so that it can be very user friendly to all the users.

The software quality attributes are assumed as under:

* Accurate and hence reliable.
* Secured.
* Fast speed.
* Compatibility.

### System Evolution:

* Including image support:

Allow to adding families, its members and general users images to the system. Which available for users to ensure that user is belongs to particular family. Also, the users may or may not see others image.

* Flags:

Allow the users to put a symbol near the activity log that helps the user to return and review the activity and perform it accordingly.

* Enable and disable Activity:

Allow the family owner to control for enable or disable the activities for family members.

* Allow to Transfer activities from one subject to another:

So, that saves the time to rewrite the event and activity agenda for future activities.

* Allow to upload the event and activities specific requirements and demands:

So, that saves the time to enter an activity in the on-line system, if the family owner needs not the direct answers.

* Enhanced the activities to be appear as random for each user:

Make the order of activities as random, or select random activities from a set of activities and assign appropriately to every user.

### Appendices:

* **Definition of Smart Family App:**
* **Introduction:**

Smart Family App is a platform which allows a family to arrange, organize and manage any day to day activity and events via this app.

* **Purpose:**

The purpose of this app is to destroy the communication gap between family members and make everyone on same platform. Process various types of events and activities at different level across any family with time to time via this app.

* Features:
  + A family owner or participant can register their various types of activities and events to perfect them with full collaboration.
  + Users just register the activities, their schedule and time in order to start the activity process.
  + Requirements of every activity will be defined. And after perform an activity the result or outcome will be compared to requirements and show results…
  + Family Owner can select the activities, its category, activity schedule and award points in order to produce nice competition in family.
* **Advantages:**
  + Nowadays, communication gap is increasing among the family members. So app will destroy the gap
  + The App covers almost all type of activities occur in a family.
  + User can perform any available activity at any time as per his/her choice.
  + The results of the all activities will help a family or family owner to list out the family member’s performance in activities and check how much everyone participating.

# Software Design Phase

### Introduction:

Design is the abstraction of a solution; it is a general description of the solution to a problem without the details. Design is view patterns seen in the analysis phase to be a pattern in a design phase. After design phase we can reduce the time required to create the implementation.

In this Phase I have introduce context diagram, models, system architecture, principal system object, design model and object interface.

### Context Diagram:

This diagram represents what are the bounders and scope of Smart Family App. It describes the main objective of the system and its entities involved.

**Smart Family Platform**

**Family Owner**

**Family Members**

**General User**

The Family Owner can be done the following:

* Create/delete accounts (add a list of family names etc.)
* Change password for family members.
* Create/ delete/update activities (subject).

The Family Members can be done the following:

* Change password.
* Choose activity.
* Insert quires.
* Specify the performance in an activity.
* Update mark of activities.

The General User can be done the following:

* Change password.
* Review activities.
* View material shared public.

### Models:

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### Interaction model:

???????????? Is a dynamic model that shows how the system interacts with its environment.

### Use Case Diagram:

?????????

### Activity Diagram:

?????????

??

### Sequence Diagram: ??????

Receive family activities

Family Owner

New registration:

Registration process:

Receive master DB:

Subject master DB:

If new

Insert

family owner DB:

master DB:

Accept/ reject

Insert

Insert

Insert

Enter user name and password

Family Owner

Login:

Select subject:

Activites master DB:

Insert Activity:

Verify

Request subject

Activities master DB:

Accept/ reject

Store question

Subject selection

Return subject

Accept/ reject

Accept/ reject

If Accept

Store result in DB:

Enter user name and password

Family Member

Login:

Select subject:

Activity master DB:

Select quries:

Verify

Request subject

Quires master DB:

Invalid subject

Inactive subject

Verify

Verify

If Accept

Unavailable question

Unavailable question

Activity Performance

If Accept

If Accept

Return result and finish the exam

### System Architecture:

Smart Family Front End

Login

Role checking

Form & Menu Manager

Data Validation

Security Manager

Azure Service Manager

Data Import & Export

Report Generation

Azure Services Management (Include DB)

### ERD:

>??

* 1. Principal system objects:

|  |
| --- |
|  |
|  |
|  |
|  |

???????/

### Develop design model:

????????/

This is what we called a heart touching Tool. Because when you touch somebody heart! That is Limitless. (Steve Jobs)

# Software Development Phase

The Software Development Phase is the core part of a Software. According to high complexity of Smarty Family App this Phase is further subdivided into different phases of development. Hence a perfect App develop according to modern needs.

In the initial phase app is develop on low level according to environment then further will enhance with time according to the requirements.

The main focus of development will be on Microsoft Platform. All development will be in Windows Platform and by the use of Microsoft Tools and technology.

All code will be in C# and later on some ASP.NET will also be use in order to get the Azure services…

The tool is using through the development is Visual Studio. Further Azure Database services are in use to store everything on Azure in order to enhance the scope of App…

As The Development phase is further divided into number of models that will be developed separately.

### Let’s Talk:

As the basic purpose of is increase the communication b/w family and destroy the gap between the family member. For that a perfect features will be provided with the App that will help people to communicate according to their own family transition…

---------

### Kids Growth:

It is very important for a family to care about their kids and increase their growth by involving them in healthy activities. So for that a great feature will be provided with this app through which parents will assign appropriate tasks to their kids to increase the growth of their kinds. Parents will give points against every activity and hence at the end they will award their kids accordingly by the participation of kids in the activities.

------

### Financials Control:

In a limited income of a family it is very important to have a strong financial control over financial activities of the family. For that purpose a fantastic feature will be provided with this app through which family members will perform their financial activities under the financial circle of the family. Hence at the end families will not face any financial issues. Family owner will also give rewards to family members. People will also get control of their financial activities…

…………………………………

### Kitchen and Food Control:

It is very normal that something in kitchen gone over and on 11th hour when people are preparing something they come to know they don’t have the stuff which they need. So a great feature will be provided with this app that will take a record of Kitchen and food stuff in home. Will inform the appropriate person of family in time when something comes to end. Also it will provide a check list when someone go out to market for purchase food stuff…

…………………………….

### Household Tasks & Planner:

It is very important to perform the household tasks with the collaboration of all family members hence things move in the better way and everyone in the family become the part of it. So App will provide a great feature in which people will able to assign appropriate tasks to other family members accordingly…

………………………..

Because the people who crazy enough to think that they can change the world are the ones who do.

-- Steve Jobs --

* **ABOUT:**

*Sajid Ali Khan is an active Microsoft Student Partner and Software Engineering Final Year Student at International Islamic University, Islamabad. Working upon Innovative Project. Getting skills of relevant field—from Professional Development to Socially communication with everyone. He follow Dr. A. Q. Khan & Steve Jobs, want to work for his people like them and make his nation parallel to other successful nations.*

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