Design Doc Template

*Author(s): xyz*

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Table of Contents

TOC \o "1-3" \h \z \u [Introduction4](#_Toc9445198)

[Summary4](#_Toc9445199)

[Background4](#_Toc9445200)

[Definitions, Acronyms, and Abbreviations4](#_Toc9445201)

[Design Overview4](#_Toc9445202)

[Requirements4](#_Toc9445203)

[Documentation4](#_Toc9445204)

[Minimum Viable Product5](#_Toc9445205)

[Stretch goals5](#_Toc9445206)

[Future work5](#_Toc9445207)

[Architectural Diagrams5](#_Toc9445208)

[System Diagrams5](#_Toc9445209)

[Application Programming Interface5](#_Toc9445210)

[Recommendations5](#_Toc9445211)

[User Interface6](#_Toc9445212)

[Data Models and Storage6](#_Toc9445213)

[Service Operability6](#_Toc9445214)

[Key Performance Indicators6](#_Toc9445215)

[Service Level Objectives6](#_Toc9445216)

[Project Overview7](#_Toc9445217)

[Communication and Tracking7](#_Toc9445218)

[Risks7](#_Toc9445219)

[Milestones7](#_Toc9445220)

[Project Phases7](#_Toc9445221)

[Cost7](#_Toc9445222)

[Frequently Asked Question7](#_Toc9445223)

[References7](#_Toc9445224)

[Addendum8](#_Toc9445225)

# Introduction

## Summary

The product compensates the need for maintaining the washrooms clean by using IoT.

## Background

The issue we are mainly going to solve is management of cleaning schedules and maintaining washrooms clean in organizations with high washroom usage.

# Design Overview

## Requirements

Consumer Requirements:

The consumers will be happy as they have many health issues these days.

As it is automatic so the effort by consumer is reduced.

Customer Requirements:

The customers will be getting profits as the increase in sales from new product which has many features.

The brand value of the company is increased.

They will capture the market.

### Documentation

If the project requires any wiki pages, code comments, presentations, etc. that information should be included here

## Minimum Viable Product

Real Time Monitoring

Automatic

SMS Notifications

App Notifications

## Stretch goals

Stretch goals include functionality beyond the scope of the minimum viable product that should be include in the project should time and budget permit. Unlike future work, stretch goals would be smaller tasks for features in support of the minimum viable product.

## Future work

This may include ongoing support, expansion of the original scope, work that requires transitions in project ownership, or details of projects designed to be broken up into multiple phases.

# Architectural Diagrams

https://www.google.com/imgres?imgurl=https%3A%2F%2Fcircuits4you.com%2Fwp-content%2Fuploads%2F2017%2F12%2Fnodemcu-pinout.png&imgrefurl=https%3A%2F%2Fcircuits4you.com%2F2017%2F12%2F31%2Fnodemcu-pinout%2F&docid=F5kCEGZXcscAGM&tbnid=D1KwGOVL3FGHUM%3A&vet=10ahUKEwjsxJSX7tHiAhUIWCsKHRN6CdsQMwhlKAAwAA..i&w=616&h=519&bih=644&biw=1455&q=pin%20diagram%20of%20nodemcu&ved=0ahUKEwjsxJSX7tHiAhUIWCsKHRN6CdsQMwhlKAAwAA&iact=mrc&uact=8

# System Diagrams

https://drive.google.com/file/d/1cXBt4FosxEdlmgN48Nfinr1312nWkLBa/view?ts=5cf773d2

# Application Programming Interface

For services, libraries, and command line interfaces that present an interface which can be wrapped

## Recommendations

Using a versioned endpoint simplifies the process of making future backwards incompatible API changes;

/api/v0

The user interface of the application is as in the following link:

https://drive.google.com/folderview?id=1-45MuASIWwB8PZtYyCf-1lF0d9-sMQNn

# Data Models and Storage

For projects requiring messages queue such as Kafka, MySQL, etc.

Kafka

* How many partitions are needed for this topic?
* How many days of retention will be needed?
* What will the partitioning key become?
* How much data will be written to the topic during peak hours?
* What type of Kafka cluster will be needed? (E.g. aggregate, queuing, tracking, metrics, logging)

MySQL

* What does the table schema look like and how are they all tied together (provide a UML)?
* What sort of updates will be made to the tables?
* How will users make queries to the tables? (e.g. Complex joins, pre-filtering, single record gets)
* What the strategy for indexing?

**Circuits and Interfaces**

**Electrical systems**

https://drive.google.com/file/d/1-sBOMh4778Mue1RA3W8kogz\_sW5ELuTq/view?usp=drivesdk.

**Mechanical Assembly**

# Service Operability

## Key Performance Indicators

Remodeling of the prototype after customer review.

## Service Level Objectives

We will provide an application program to control the product and monitor the status of the washroom in real time.

We will also provide after sales services like replacing the gas sensors after the particular point of time.

# Project Overview

## Communication and Tracking

Any relevant distribution lists, slack channels, taiga projects, etc

## Risks

The product depends on the android application for the controlling and if the failure of the android occurs it causes a risk of application crash which involves data loss and inconsistency of the results.

## Milestones

Week 1: Prototyping

Week 2: Testing and Customer review

Week 3: Improving according to the reviews

Week 4: Redesigning

Week 5: Market Research

Week 6: Final Testing

## Project Phases

1. Prototype

Designing the working model based on idea.

1. Development

Making the model to function on based on real time conditions.

1. Testing

Implementing the model so that it runs without errors.

1. Customer Review

Enquiring the customers about the problem, does the problem exists, what are their expectations and the cost they are willing to pay.

1. Improvement

Improving our product based on customer point of view.

1. Prototype Redesigning

We will design the working model according to the wish of the customers.

1. Market Research

We need to enquire about the customers, competitors’ products, prices and features provided them.

1. Testing:

After redesigning the working model, we again need to run it to make error free and more accurate.

## Cost

Level of effort, number of resources, number of hours or weeks, unlike milestones which tracks project time cost should only include engaged time.

1) For the all tasks which are deliverables/visible on user-end side needs to be documented as stories.

2) Need to guess/estimate the time required in number of hours for the completing that stories which can be captured in taiga.

3) Assign that task to the right person and document the actual time taken for completing that task.

# Frequently Asked Question

# References

https://www.linkedin.com/pulse/why-urinals-stink-uttam-banerjee

# Addendum

Additional diagrams or details that do not particularly belong in the body of the design doc. This could also be a place to describe additional examples that would otherwise bloat the introduction section. More specifics on APIs could also be placed here for engineers to reference.

**Materials Used**

1. Micro controller
2. Photo Electric sensor
3. Gas Sensors
4. Automated Spray
5. Automated Flush

**Fabrication Work**