Prevent, Mitigate, and Recover (PMR) Insight Collective Knowledge System (PICK)

Software Configuration Management Plan

Version 1.2

2/23/2020

**Document Control**

**Approval**

The Guidance Team and the customer shall approve this document.

**Document Change Control**

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**Change Summary**

The following table details changes made between versions of this document

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| Version | Date | Modifier | Description |
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# Introduction

The software configuration management plan is intended to allow the team to create and maintain the lifecycle of a software system. This document will describe the three main concepts for our project “PICK” (PMR Insight Collective Knowledge), which includes Software Configuration Identification, Control, and Auditing. ”PICK” requires different people on the team to work on different areas of the project, which is why it is essential we follow the Software Configuration Management, SCM, plan within this document to ensure the process of creating the software from beginning to end flows fluently.

## References

[1] Tai Ramirez, E., Roach, S. Software Requirements Specification.docx v1.1

# Software Configuration Identification

This section will provide the information for baselines and updates for “PICK”.

## 2.1 Software Configuration Item Identification

This section will describe all the configuration items that will be included in “PICK”.

* Source Code: Code we will need to implement to make the application to succeed
* Design Document: We are going to design the Graphical User Interface, GUI, using qt Designer to meet the client's requirements on the Software Requirements Specification, SRS.
* Test Suites: Robot Frameworks, Pytest, and Pyunit
* Requirements Documents: Software Requirements Specification.
* Project Plans: We are planning to follow the SCM plan. We are planning to follow a similar structure of code within the team. We will use testing techniques, and Security measurements.
* Project Standard: We will be going to use one class for each tab of the project; we will leave the working project in the master GitHub all the time, and the new updates that are to be made will be made on a separate branch which will then be pushed to master when it is completed
* The project will be utilizing Maltego, Splunk, Python3 and Pytesseract.

## 2.2 Software Configuration Item Organization

This section will describe the labeling scheme for each baseline and update to the system. The first version of PICK will be v1.0, which will serve as the baseline to the system. Any changes to the system will go through the team and when an update is to be provided for the baseline, the version will be updated to v1.1 for the first update, v1.2 for the second update and so on. Additionally, any bug fixes done for a version of the baseline will be presented as v1.1.1 for the first update, v1.2.1 for the second update and so on. This number may increase as well if new bugs are identified and fixed and will be presented as v1.1.2 for the first update, v1.2.2 for the second update and so on. The following explains an example of how the version structure will look like.

In general, the structure will be like this:

v1.0 --- Initial Version

v1.1, 1.2, 1.3… --- Following Baseline Versions

v1.1.1, 1.1.2, 1.1.3…. --- Bug Fixes with second number corresponding to baseline version.

All our files will be in a single directory, but inside there will be separate folders that will each hold specific files. Some folders include, GUI elements, source code, test cases.

This is how it will look like:

* PICK (root folder)
  + GUI (sub folder)
  + Source Code (sub folder)
  + Test cases (sub folder)

In regard to backups of our code, Eduardo Lara will do a full backup of all the mainline code to a separate repository every week on Sundays at 10:00pm. Additionally, Gerardo Armenta will be in charge of a local backup that will be done every week on Sundays at 10:00pm just like the one in the separate repository every week. Doing so will maintain both backups with the same versions of all the code used and have two different backup controls for the team project. Each file that is backed up will have the date of the most recent changes to it in order to keep track of all the recent files, along with comments about each backup that happens.

The repository that we will be using is going to be GitHub. GitHub allows our team to have a master branch, which will serve as the mainline to the source code of the system. Whenever an update to the code is to be provided, the new code will be merged onto the mainline and the mainline will be the newest version. The branching strategy that will be used is a simple GitHub Flow which requires branching off master every time a new feature or bug fix is required, allowing master to stay deployable and when a feature or fix is finished, it is merged back to master. Tags will be used to identify versions that a branch is working on or corresponds to. Prior to a branch being merged back to master, it will be discussed with the team to make sure all necessary changes for the new version or correct.

# Software Configuration Control

To make any change to the configuration items the proposed changes must first be communicated and discussed with all members of the team. After an agreement has been reached regarding the proposed changes an investigation will be performed regarding the potential benefits as well as the disadvantages regarding changes to the configuration Items. An investigation will require all members of the group to individually research different ways in which the change will impact productivity around the team. After the investigation is concluded and if the results indicate a positive the proposed change will be put into place.

## 3.1 Documentation

The documentation used for processing changes will help keep record of the date of the proposal, who proposed it, which members have reviewed the proposal, what is the proposed change, the reasons of why it is being requested, if it is approved or not by the team and how much of a priority it is based on a scale from 1 to 3, 3 being of outmost importance. The following is an example of how this template will look like.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Date | Proposed by | Reviewed by | Proposal | Reason | Approved | Priority Level |
| 2 / 3 | Irvin | Hector | Changed lines 30 – 50 from main source code | Found issues when running certain parameters | YES | 2 |

This will help us keep changes documented. Additionally, it will be documented in the GitHub Projection section to have an online document change manager as well as the hard copy we will use in our meetings.

## 3.2 Configuration Control Board

For every major point in the development of the system a lead will be assigned, the lead will be responsible for controlling the changes and approving changes proposed by other team members. Team leads will be assigned based on who has not been a lead before and whose role fits best for the assigned task (Lead programmer, Architect, etc...).

Specifically, the teams V&V will be tasked with ensuring that any changes done to the system are both valid and verifiable, this will be done by auditing main changes and tracing such changes to the SRS manually. To ensure that each team member only directly contributes to a specific component without overlapping we will assign and divide tasks during a weekly personal meeting.

The branches generated by the changes proposed will keep track of changes and who made them, making it easy to search for changes and ask certain members to explain them.

## 3.3 Procedures

This section will describe the way the team is going to keep track of all changes and proposes to the system. The team will use GitHub Projects Section to keep track of activities and tasks that must be completed. The issues and pull request sections will provide the team with tasks, features that are being worked on and fixes. For the configuration items and the modifications, GitHub automatically keeps track of all changes, commits, pushes and pull requests made, so that is taken care of automatically. Irvin Bosquez will oversee the documentation of team meetings and any team decisions in a Google Doc with dates and time of the decision, which will usually be reflected on items in the projects section of GitHub.

In general, the procedure for a change in the code will be as follows:

* Any proposed changes will be brought up during team meetings.
* Every team member will have a description on what changes need to happen in the system or what changed they suggest.
* Once all change proposals have been heard, the team in unison will decide which changes need to happen and which don't, and which changes should have a higher priority.
* The results for the change proposals will be based on the feedback the team gets from the clients, and from the meetings that happen with the guidance team.
* Since the team is responsible for both proposing changes and writing the code, this documentation will serve a big part of the system to make sure we are doing the correct changes and not doing any unnecessary work.
* Once changes have been decided, the task will be set on the GitHub Project section and a description will be documented on google docs.
* After a change has been proposed and accepted, a task will be created in GitHub, along with, as explained before, a lead.
* A branch will be created for the fix, or feature to be added.
* The team or a subset of the team will work on the branch.
* Once a feature is added or a bug is fixed, a merge request will be generated to try and rejoin with the main branch.
* If any conflicts exist, we will look at the conflicting modifications, trace the conflict back to where it came from to see if it needs to be fixed, or the feature is incompatible with the current main.
* If unsolvable conflict, it will be deemed as a necessary fix, and will get its own branch to solve that. Else, branched will be merged back and the main branch version will be updated according to the already mentioned numbering scheme.

In general, the procedure for a change in plan, or the change of a document or a design model will be as follows:

* Any proposed changes will be brought up during team meetings.
* Every team member will have a description on what changes need to happen in the system or what changed they suggest.
* Once all change proposals have been heard, the team in unison will decide which changes need to happen and which don't, and which changes should have a higher priority. This will be set based on deadlines and the SRS, Memos and Client Meetings, giving the SRS main features a higher priority over aesthetic changes, for example.
* The results for the change proposals will be based on the feedback the team gets from the clients, and from the meetings that happen with the guidance team.
* After the change has been proposed and accepted (following the procedure described in previous sections) the document or artifact will be created (if already created, it will be modified where it was created) with a collaborative tool such as Google Docs, drawIO or any similar tool that automatically keeps track of changes and allows concurrent working.
* A lead, and the team or a subset of the team will work on the artifact.
* Once finished, the artifact will be compared to the current version of the system, to see if the current system requires a modification or an update.
* If no update or modification required at the moment, the artifact will be saved. Otherwise, we will initiate the procedure for code editing or the artifact will be redone without the conflicts.

# Software Configuration Auditing

The mechanism the team will use to determine the degree to which a configuration of the software system mirrors the intended software system will be the SRS. We will trace all changes to the SRS to make sure we are keeping up with all the requirements from the clients. We will also trace back to the change log in 3.1 to make sure that any changes proposed by the clients are also met. This way all of the clients’ needs can be met. This will help the team ensure that the SCM plan is being followed correctly and any change done is the one intended and not lose track of what the clients’ want.

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