**Mobile application for capturing geological field information**

.

Elaborated

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# Introduction

Geology is the science that aims to study the earth; Geologists obtain information through field work, which is to visit the places you want to analyze, recording their findings in a "field notebook" in it the data are recorded during the days of research carried out in the open ; The field book is a fundamental tool for the conservation of geological projects, which preserve the recorded data, accompanied by sketches, drawings, sketches, among others, to represent different types of information provided.

System development, allow users to store geological information in a notebook virtual field, facilitating the capture and geological data management, maintaining order and facilitating the receipt of the information obtained during their days in the open.

# Purpose

A review of the issue indicates that the creation of a system according to the needs of the geological community, facilitate their work in protecting the information that was obtained during field work, avoiding the loss of relevant data and facilitating the geological project management, the system will take the concept "Field book" of which the main features of it, to be implemented and improved with the support of the new tools available today are abstracted.

The software gives users the ability to store geological information was obtained during their days of fieldwork, managing to keep the ordered and available data to be viewed by the user in the system also will allow the transmission of geological information a standard format, so the information can be analyzed by another person as if himself had obtained.

# Scopes

The mobile application abstracts the concept of the field book, allowing the storage of surface geological projects, following a unique flow to capture the geological information in the field and storing the information in the cloud.

# System Overview

The system developed is designed to solve the problem of storage and preservation of geological information, geologists will be revered for being able to perform their work outdoors, in turn, the system will help minimize problems in the transmission of information by eliminating abbreviations invented by geologists by placing general terms that will help a better understanding of the annotations that are shared.

The major functional objectives of system:

* Make a mobile application for geological storage projects surface.
* Create single stream for capturing information.
* Implement a function to store the information obtained during the days of fieldwork in the cloud.
* Create a function that allows the creation of reports in a stylized format.
* Allow users to capture photographs and sketches creation.

# Limitations

* The system functions in android devices 7 or higher.
* You only have a specialized form on surface geology.
* You may upload up to 10 photos per form.
* The device must contain at least 1 GB of memory available.

# Audience

The proposed software will target geological and geophysical community, as system will specialize in this area of ​​knowledge, counting vocabulary of these branches of study.

The system is recommended for students or amateurs to the study of earth sciences, since they would provide a real alternative to show all data that can be obtained by a geologist on field experience.

# Applicable Configuration Items

The system can work on the following devices

• Android 7 or higher

• IOS

Mobile devices must have less than 500 MB of available space.

# Configuration Management

# Organization

The following table identifies all personnel that have responsibilities regarding to system configuration management.

|  |  |
| --- | --- |
| **Role** | **Name** |
| Project manager | Omar Cordova |
| Analyst | Omar Cordova |
| Designer | Omar Cordova |
| Developer | Omar Cordova |
| Tester | Omar Cordova |

# Responsibilities

Each of the roles identified in the earlier table have specific configuration management responsibilities.

**Project manager**

It is responsible for obtaining requirements and dealing with the client, in addition to coordinating the activities between the development team, the visible face of the work team before the clients.

**Analyst**

Analyze and organize the requirements by priority, he decides what requirements can be developed and which are not feasible.

**Designer**

Responsible for the modeling of the requirements, creation of interfaces and conditioning of the database.

**Developer**

Project developer based on requirements modeling.

**Tester**

In charge of finding the system errors for correction, test the system for its exit to the client or its return to the development phase.

# Configuration Management Activities

The development team guidelines provide a structure to ensure that all system components are documented and managed throughout the system's life cycle. The system consists of a series of packages, operating systems and hardware platforms. Improvements in each of these areas are launched with relative frequency.

The activities necessary to achieve the objective include:

* Configuration identification
* Configuration control
* Configuration Status Accounting
* Configuration audits and revisions

# Configuration Identification

There are four main areas of system configuration:

* Documentation
* Software
* Hardware

You can add or delete specific items in each of these areas during the software life cycle. This document will be modified to reflect any changes.

# Documentation

During the software life cycle, project documentation will be developed and updated. In most cases, the documents will be issued in draft and final form. The project manager will be responsible for the publication of the documents.

All project documentation, as defined in the project plan, is subject to this guide. Project documentation includes, but is not limited to:

* Project Plan
* Quality Assurance Plan
* User Documentation
* Test Plans

# Software

During the development process it will be necessary to use the following software

* Pycharm
* Kivy Launcher
* Ubuntu operating system

# Hardware

During the development process it will be necessary to use the following hardware

* Android device
* IOS device
* A laptop

# Configuration Control

Software and hardware components can be updated and released to the general public very frequently. It is anticipated that these updates will be handled through the configuration control process, or the configuration control board, and will be initiated by project team members. These changes can be initiated by project team members or customers. The work team will meet as necessary to review change requests.

The work team:

* Approve specific procedures to encourage customers to identify improvements and send change requests
* Agree criteria to prioritize, evaluate and approve or disapprove change requests
* Approve a prioritized list of changes that will be made in the current production version
* Set schedules to issue each new version and ensure that each new version is properly tested and documented before issuance.

### Criteria of approve or disapprove

Below are the criteria that must take to approve or disapprove the changes:

Approve

* The cost associated with the change request must be covered by the customer.
* The change in requirements should not take more than 10% of the project time.
* The change request must be realistic and possible to make.
* The change request must not violate any law of the country’s penal code.
* The change request must be approved by the work team.
* Agree on criteria for prioritizing, evaluating, and approving or disapproving change requests
* Set schedules for issuing each new version and ensure that each new version is adequately tested and documented before issuance.

Disapprove

* The change request should not affect the operation of the system.
* The cost is not covered by the customer
* The new requirement affects the finished modules.
* The new requirement affects the finished modules.
* When the change request implies to modify the project no more than 10%
* The change request does not affect the project delivery times by 5%.

# Requesting Changes

Any member of the work team or any client can request a change or correction to the system. A Change Request form must be sent to the Project Manager to initiate the process or a request can be sent to the support team through a form registered as an incident.

This form, or the incident, will be used to report problems, identify new or modified requirements and record suggestions for improvement.

# Evaluating & Approving/Disapproving Changes

Upon receiving a Change Request form, the Project Manager will review the form to verify that it is complete, clear and applicable. If the form is incomplete in any way, the Project Manager will contact the sender for clarification. Assuming the form is complete, the Project Manager will conduct an impact assessment of the change. The following is a list of impact definitions.

* Emergency: if the change is not made as soon as possible, the operation can be severely hampered or completed. An emergency change request must be resolved within 24 hours.
* Critical: the impact of not making the change would significantly affect, but would not suspend its operation.
* Routine: a normal change request that can be planned included in a current schedule or plan and classified among other normal actions.
* Deferred: a request for reasonable change and that is beneficial to the system, but is delayed due to other project schedules or tasks.

# Implementing Changes

After a Change Request form is approved, the Project Manager will assign the appropriate technical staff for the task. All changes will be made in the test bench environment. When a change has been fully tested in the test bench environment, a schedule will be developed to implement the change in the production environment.

The change in the production environment will be completed outside normal business hours to minimize the impact on customers.

# Configuration Status Accounting

A detailed monitoring of each configuration element will be carried out. The monitoring will be carried out by the Project and Configuration Managers. The use of an automated system is likely, but not fully defined at this time.

The paper records of the Change Request forms will be kept in a project notebook. All change request activity will be recorded in the Monthly Technical Status Report required of all assigned tasks. They will also be discussed and distributed in regular project meetings.

# Configuration Management Resources

A common software package is likely to be used and no costs are incurred on a specific tool. As a result, no additional training, personnel or equipment will be required.

# Configuration Management Plan Maintenance

Project and configuration managers are responsible for maintaining this plan. The plan is subject to the procedures specified in the Software Quality Assurance Plan. Under the terms of the software quality assurance plan, the plan is subject to revision throughout the entire life cycle of software development, particularly during the Stage Evaluation and Stage Exit evaluation processes. Significant changes will be made through a new version of the plan. Minimal changes can be made by using page updates.