**Mobile application for capturing geological field information**

.

Elaborated

Omar Alejandro Gallardo Cordova

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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.

# 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.

# Modules

The system will have to develop the following modules:

**Capture module**

The capture module will allow users to capture information in the field of written and photographic way.

Forms automatically get information such as date, time and geographical location (latitude and longitude), if the user wishes can make a sketch about a photograph or a blank background.

**Connecting to the cloud**

The connection module to store projects in the cloud so that they are available at all times if the user needs.

**Reports generation**

The system will make reports organizing information based on the characteristics of the data, which will locate an important data quickly and easily, reports will be generated in PDF format.

# Technologies to be used

For the development of the system it has decided to use it was decided to use the Python programming language being a multiplatform language which has a native database of SQLite language and we will rely on technology development Kivy interfaces.

Technology Kivy allows us to make android applications easily and flange us different tools to correct errors before generating a final application or use your area Kivy evidence launcher, which is an application that lets you run files python on a android device and verify the operation of the application before creating the final application.

# Resources

To prepare the project is considered necessary to have the following resources

* 6 team members.
  + 1 project leader with a salary of $ 25,000 per month.
  + 2 designers and analysts with a salary of $ 18,000 per month
  + 2 programmers with a salary of $ 15,000 per month
  + 1 tester with a salary of $ 14,000 per month which will only be necessary over the last 4 months of the project
* 3 mobile android devices for testing.
* A budget of $ 688,000 for the development of the application.

Based on what was presented in project completion within 6 months it is expected.

# Use cases

UC1: Start of work

The graphical interface will ask the user, his name and type of work, after they are added the system will show a form in which it will automatically show the latitude and longitude using the GPS of the device.

UC2: Type of land:

The user should choose the first type of land and the system will show the possibility of adding one or two more.

UC3: Land type income:

Based on what is selected in UC2, the system must show the type of land selected for each type of land, whether primary, secondary or additional.

If two or more types of land have been selected, you must enable an extra form to place the type of cutting arrangement between both types of land.

UC4: Creation of sketches

The system will allow users to take photographs or place a white background to draw on the selected surface and highlight or create visual information.

UC5: Cloud connection

At the end of the capture and having captured the information without error, the system must store the form in the cloud and store it in the corresponding work library.

UC6: Library Visualization

 The system should give the possibility to consult the information of old libraries that are in the cloud, these should be displayed on a screen showing the ordered information and setting aside the options to edit, delete and report.

UC7: Modification

Once the information is displayed and the edit button is pressed, the system will activate the fields that can be edited, including latitude, longitude, date, granularity types, among others to be defined by the user.

UC8: Report generation

Once the information is displayed, the user will press a button to generate the final report, which should be on a standard type sheet and in a stylized format, the information will be displayed in an orderly manner and with its respective image if it was captured.

# System Requirements

**Functional Requirements**

|  |  |
| --- | --- |
| **Identifier** | **Requirement** |
| REQ1 | The system must show the geological coordinates at the time of starting the capture |
| REQ2 | A list of land types must be displayed to be selected by the user |
| REQ3 | The system must show a capture field for land type and allow up to 3 different land types to be captured. |
| REQ4 | The system will allow the capture of photographs for the creation of sketches |
| REQ5 | The system must store the information in the cloud once the user completes the form and saves the information |
| REQ6 | Once the information is stored, the user can create a report of the captured. |
| REQ7 | The user can delete the information |

**Non-Functional Requirements**

|  |  |
| --- | --- |
| **Identifier** | **Requirement** |
| REQ8 | The system will have a section of frequently asked questions to ask questions |
| REQ9 | The system will have a minimalist interface |
| REQ10 | The system will have backgrounds in blue and gray tones |
| REQ11 | The system will have a friendly and intuitive interface |