Project Proposal

Fertilizer Guide

Course: SE 505 Software Project Lab - II

Submitted by

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Submitted to

SPL 2 Managers

Institute of Information Technology
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SPL-2 Coordinators,
Institute of Information Technology
University of Dhaka.

Subject: Prayer for permission for project approval.

Sir,
By referring to the above matter, we would like to present the Project Proposal document. The main purpose for this proposal is to explain the project idea thoroughly. We hope that you will give your suggestions after going through the document. Please notice for any sort of modification.

Your cooperation is really appreciated.

Sincerely yours,

Md. Tahmidur Rahman Khan
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Date and Signature
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1. Introduction

Agriculture has been a powerful driver of poverty reduction in Bangladesh since 2000. It is accounted for reducing poverty by 90 percent between 2005 and 2010. [1] The total land area of Bangladesh is 14.3 million hectares but only 59.8% of it is available for cultivation. [2] The population in the country is increasing rapidly and so the agricultural land is declining in an alarming rate. Also, frequent uses of the land cause the nutrient balance to get deteriorated. So, it is imperative to maintain the nutrient balance of the soil by fertilizing it appropriately. Also, the soil has to be utilized to grow ample crops for the vast population.

The soil samples are collected by the soil surveyors of the country so that the soil specialists can acquire information about the soil. The information is then used to know about the suitable crops for the land. The soil surveyors record the sample data manually on their "sample collection form" during the collection of the samples. It can often lead to errors and becomes tiresome to input the data in the database.

The software project 'Fertilizer Guide' will guide a farmer to use adequate amount of fertilizer based on his/her region. The software will also suggest him/her the best crops to grow for his/her region. Also, this project will let the soil surveyors of the country to record soil sample data easily as their "sample collection form" will be managed by the software.

2. Background Study and Rationale

As population in the country is increasing at an alarming rate, the agricultural land is declining rapidly. During the last decade of 80's, only 15 percent of land in rural areas were being used as non-agricultural activities. But now, it has been increased to 30%. During 1983-1984 the total cultivated area was 20 million 238 thousand acres. But in 1996, it has been decreased to 17 million 449 thousand acres. The cultivating land has been decreasing, on average, at the rate of about 1% during the last 12 years. Also, it was observed that 35% land of the country is very good for agricultural crop production, 40% is average type while 25% land is less suitable for agricultural crop production. [2]

Land of Bangladesh is divided into 30 agro-ecological zones (AEZ) according to soil type, hydrology, physiography, cropping patterns and seasons. These 30 zones have been subdivided into 88 agro-ecological sub-regions. The 88 sub-regions have been further subdivided into 535 agro-ecological units. Different land has different cropping patterns. So, the ecological characteristics has to be kept in mind to get sufficient agricultural productions.

The soil surveyors of the country collect soil samples from various regions. For each sample, they have to record sample number, location, date, time and other information in a "sample collection form" manually. This sample is later examined by a soil specialist. He/she can obtain information from the sample and the data can be used for various purposes like researching, finding out the suitable crops for that soil etc. So, any flaw during the collection of the sample can cause a serious problem.

Technologies are being used to reduce the flaws of the agricultural production system. There are some applications available on Internet to provide knowledge to the farmers for cultivating crops in a better way. Most of those provide guidance to them about using the fertilizer properly for a certain crop. Those also provide information about the implementation methodology of the agro-based products. The details of some of those applications have been discussed briefly in the following sub-sections.

1. Agriculture Info App

It is developed by "National Apps Bangladesh" under the Ministry of Agriculture. It provides information on crop cultivation, fisheries and livestock. It also gives details about the implementation methodology, management and maintenance of the agro-based products. But it does not provide any information based on the AEZ.

2. AgriApp

It is an android based application which is developed by "Agriapp". It provides complete information on crop production, protection and all relevant agricultural services. It also does not give any information based on the AEZ.

3. Fertilizer Recommendation Guide

It is a web based application developed by "eGeneration" which provides fertilizer guidance based on AEZ. But it does not recommend the best crops based on the AEZ.

There is no android based application that provides fertilizer guidance according to the AEZ. One of the purposes of this project is to solve this problem. This android application will also give suggestions to the farmers about the crops suitable for their land. This project will also let the soil surveyors record the sample data through the software. Most of the information that they had to fill in the "sample collection form" will be generated by the software. This will make the job for them easier and error-free.

3. Objectives

- This project will help the farmers to utilize the land by using fertilizers properly.
- It will suggest the farmers the best crops to cultivate based on his/her region.
- It will enable the soil surveyors to record the soil sample data through the software easily. This will make it easier to maintain the data and use it for various purposes.

4. Project Description

- The project will give information about using the fertilizers appropriately to the farmers based on their regions.
- The project will also keep track of the soil samples collected by the soil surveyors.
- It is both an android and a web based app. The farmers and the soil surveyors will use the android platform where the administrators will use the web platform of the software to insert necessary data. Data can also be updated. The information provided to the farmers will be based on those data.
- It also records the activities of the farmer.

5. Scope of Development

- This project will provide fertilizer recommendations for Mymensingh Upazila only.
- It will give fertilizer recommendations for five crops: rice, jute, wheat, potato and mustard.
- It will have a two factor authentication system.
- Fertilizer recommendation and auto completion of "soil collection form" will only work on the android platform.
- The examined data of the soil sample have to be inserted manually through the web platform.

6. Stakeholders Description

For this project, three stakeholders have been identified. They are: Farmer, Soil Surveyor and Soil Specialist. A brief description is given about them in the following sub-sections.

1. Farmer

A farmer is a person who is engaged in agricultural activities. He/she might own the farmed land or work as a laborer on land owned by others. Each day he/she works from dawn to dusk. Because of his/her efforts, others can have food to eat.

2. Soil Surveyor

Soil surveyor is a person who surveys soil samples. He/she collects soil samples of different lands. The sample is later examined by a specialist.

3. Soil Specialist

Soil specialist evaluates and interprets soil samples collected by the soil surveyors. He/she records data from his/her inspection. The data can contribute to agricultural production.

7. Timeline

Activities	January	February				March				April				May
	Weeks 4	1	2	3	4	1	2	3	4	1	2	3	4	1
Discussion with the stakeholders														
Documentation														
Coding														
Testing														
Project Submission														

8. References

1. **Bangladesh: Growing the Economy through Advances in Agriculture,** http://www.worldbank.org/en/results/2016/10/07/bangladesh-growing-economy-through-advances-in-agriculture. Last accessed on: 25 January, 2017.

2. **Agriculture,** http://en.banglapedia.org/index.php?title=Agriculture#Agricultural_land. Last accessed on: 25 January, 2017.

3. **Agroecological Zone,** http://en.banglapedia.org/index.php?title=Agroecological_Zone. Last accessed on: 25 January, 2017.