



HERBS LENS – A SMART WEB APPLICATION FOR RECOGNIZE TO THE HERBS USING PICTURES

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Statement of originality of submitted work

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Here by confirm that the work presented here in this report, and in all other associated material, is wholly my own work, and I agree to assessment for plagiarism

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ABSTRACT

Herbs recognition application is a smart Web based system that can be easily recognized various herbs to every person. Sri Lanka is a place of various herbs completely. But the majority peoples are cannot recognize their want herbs. Because of that, some peoples are having a big problem about their some illness and their health. The solution to this problem is every person is can take a picture in their smartphone in an herbal plant and this picture can upload in our Web system. After, there can recognize their want herbal plant. We hope to create an easy-to-use web application for this problem. These Application then intended to be tested uses various herbal plant. So, our conclusion is that this system of ours is a good solution to this problem. It is very difficult for the new generation to identify the green species required for the "green porridge" that is made for everyday drinking. Also, herbs for various common ailments can be found in the garden, but they cannot be identified accurately. Our aim is to provide a solution to all these problems.

Key Words - Herbs recognition application, herbs, recognize, picture, smartphone, herbal plant, web application

I certify that I have read this Project and that in my opinion it is fully adequate, in scope and in quality, as a project for the HND in Computing.

Mr. M.G. Asanka Dinesh (Supervisor/Lecturer)

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1. CHAPTER 1: INTRODUCTION

1.1. PROBLEM STATEMENT

Ayurveda, Siddha and Unani medical systems are practiced, along with Sri Lankan indigenous traditional medicine (Deshiya chikitsa). In addition, the Sri Lanka traditional medicine therapies also commonly include panchakarma, herbal, mineral and metal-based products, magico-ritual performance, massage, diet and lifestyle change.

Plants have been used for treating various illnesses over thousand years through four systems of traditional medicine in Sri Lanka as mentioned above. Traditional systems of medicine play a pivotal role in lives of Sri Lankan rural population by fulfilling 60–70% of primary health care needs. 1,430 species representing 181 families and 838 genera are considered as medicinal plants. Out of the total number of medicinal plant species, 174 (12%) are endemic to the country. 250 species of medicinal plants are commonly used in traditional medicine of which 50 species are heavily used. Thus, it clearly implies the importance of medicinal plants in different systems of medicine in Sri Lanka.

According to the Medicine Statistics Section, Department of Ayurveda, 40–59% of the population is estimated to be using indigenous traditional medicine. Acupuncture, homeopathy and Unani medicine are used by 1%–19% of the population and Ayurvedic medicine by 20–58% of the population. Overall, out of a total population of 22.04 million in the country (2021), about 11% -15% seek treatment at government-operated Ayurvedic hospitals.

Overall, we looked at the reasons why the majority of people in Sri Lanka do not turn to Ayurveda or traditional medicine. We found the main reasons for that...

1. Even if you can be completely cured, it will take a long time for those treatments.
2. Having fatigue and commitment is not as easy as English medicine.
3. Lack of certified doctors.
4. Lack of trust and reluctance on the part of the people due to the lack of such doctors.

5. Being a thief among doctors who are honestly committed to medicine.
6. At present, with the deforestation, it is not possible to find the necessary medicine.

In general, although these facts are a major influence on the above question, our conclusion is that the main reason for all this is people's ignorance.

Our traditional medicine is lost to the new generation as even the herbs that can be found in their backyard or in their area on a daily basis are missed due to ignorance. Therefore, we intended to create a web system as a solution to this problem. The relevant project proposal is given here.

1.2. LITERATURE REVIEW

Several of these types of research projects were considered in the literature review. In literature review, we hope we will find some very useful information that will help you with your Global plant research project. For example, how to build this project at the highest level of research using the most appropriate skills and the knowledge gained from this project. Some projects are only research at a conceptual level, while others have not been successful at a significant level. The main advantages and disadvantages are highlighted here in the literature review and at the end of the chapter.

This review paper provides a survey on different plant disease detection techniques which are given in preceding papers.

1.2.1 A Literature Review:

In this paper (Kaur and Kang, 2015) Support Vector Machine (SVM) is implemented which contains two datasets-training dataset and train dataset. Here training image is compared with the stored image in the dataset. Then filtering is applied and both images will be compared. After that image masking will be done which will find healthy image, diseased image and histogram of the images. Finally healthy and diseased area will be compared and result will be shown in the percentage of fraction of disease with disease name mentioned.

In this paper (Dhaygude and P.Kumbhar, 1970) partial Gray-level Dependence Matrices (SGDM) method is used. Here input RGB image is first converted into Hue Saturation Value (HSV) format. Then green pixels are masked and removed. Then infected portion of the leaf is extracted. Now the infected region is segmented into patches of equal size. Patches with more than 50% of information are taken into consideration for analysis. SGDM is used to extract statistical texture features.

In this paper (Kulkarni and K, 2012) Gabor filters and Artificial Neural Network (ANN) is used for the implementation. Firstly, images are captured and an image database is created which is used for the classification. Images for detection firstly segmented and

then feature extraction is applied using Gabor filter. Then recognition is done which is having two steps raining and classification. Classification is done using ANN.

In this paper (Bashish and Department of Information Technology, Al-Balqa Applied University, Salt campus, Jordan, 2018)K-means Clustering method and Neural Network Approach is used. First of all, a device independent color space transformation structure is created which converts color values into color space. K means clustering method is used to partition a leaf into four clusters in which one or more clusters can contain more than one disease. Then Color Co-occurrence Method (CCM) is used for feature extraction. Finally pre-trained Neural Network is used(Anon., 2022) for classification which acts as a statistical classifier.

In this paper (EPSO, 2000) the European Plant Science Organization, is an impartial educational enterprise presently representing 70 institutional individuals bringing collectively extra than 2 hundred studies institutes, departments and universities from 31 international locations in Europe and beyond. EPSO`s task is to enhance the effect and visibility of plant technological know-how in Europe. EPSO`s pinnacle priorities are to offer recommendation on technological know-how coverage closer to a strategic method and important mass investment for simple and implemented studies throughout Europe, to coordinate studies sports on the countrywide and European levels – and beyond, and to facilitate the knowledge of plant technological know-how. Their mission is EPSO`s mission is to improve the impact and visibility of plant science in Europe.

In this paper (Rastogi, Arora and Sharma, 2015) automatic leaf recognition and leaf disease grading is done for various leaves of the plants. The proposed system has been classified into two phases: 01. Training Phase, which includes Image Acquisition, Image Pre-Processing, Feature Extraction and Artificial Neural Network based training.02. Testing Phase, which includes Test Image Acquisition, Test Image Pre-processing, Feature Extraction, K- means based Segmentation and Classification, Percentage Infection Calculation and Disease Grading using Fuzzy Logic Toolbox.

In this paper (James B. Hunt Jr. Library, 2015) community-generated database of more than 2 million high-resolution images of herbarium and other basic material from hundreds of herbarium collections around the world. It is an important resource for institutions supporting research and education in botany, ecology, and conservation studies. With Global Plants, herbariums can share specimens, experts can define and update naming structures, students can discover and learn plants in context, and records of plant life can be preserved for future generations. there is. Content available at Global Plants was provided through an initiative known as the Global Plants Initiative (GPI).

In this paper (Gu et al., 2021) a classifier is designed for fungal diseases detection in wheat plants by pattern recognition techniques. Unhealthy regions were segmented by Otsu thresholding method and morphological operators and their texture, color and shape features were extracted. To reduce dimensionality of the features space, significant features are selected by minimal-redundancy-maximal-relevance criterion that is based on mutual information. A radial basis function (RBF) neural network was employed to classify wheat diseases.

In this paper(Khazdair et al., 2019) They have tried to list out various plants that have been proved to possess antimalarial and/or antipyretic activity. The phytocompounds from these plants can further be identified and characterized. A lead compound obtained, can be used to treat malaria and its related symptoms. Malaria is known to cause around 1 million deaths per annum. This life-threatening disease is mostly prevalent in Africa. Due to the burgeoning problem of drug resistance, it is getting very difficult to treat patients suffering from this disease.

In this paper (Aejazuddin, 2016)as per WHO Traditional medicine is the sum total of the knowledge, skill, and practices based on the theories, beliefs, and experiences indigenous to different cultures, whether explicable or not, used in the maintenance of health as well as in the prevention, diagnosis, improvement or treatment of physical and mental illness. World Health Organization define Traditional herbal medicines as naturally occurring,

plant-derived substances with minimal or no industrial processing that have been used to treat illness within local or regional healing practices.

In this paper (Khazdair et al., 2019) growing attention has been given to traditional medicine. In traditional medicine a large number of plants have been used to cure neurodegenerative diseases such as Alzheimer's disease (AD) and other memory related disorders. *Crocus sativus* (C. sativus), *Nigella sativa* (N. sativa), *Coriandrum sativum* (C. sativum), *Ferrule asafetida*, *Thymus vulgaris* (T. vulgaris), *Zacharia multiflora* (Z. multiflora) and *Curcuma longa* (C. longa) were used traditionally for dietary, food additive, spice and various medicinal purposes. The Major components of these herbs are carotenoids, monoterpenes and poly phenol compounds which enhanced the neural functions.

In this paper (Hosseinkhani et al., 2018) Gastroesophageal reflux disease (GERD) is one of the most common diseases in society, affecting up to 40% of the population. It has major impact on the quality of life and a high burden on medical expenditure. In this work, herbs used by ancient Iranians to treat GERD have been introduced. Their method Different well-known Persian textbooks and recent electronic databases were searched to explore the treatment of GERD and the pharmacological mechanisms of the identified medicinal plants.

In this paper (Salehi et al., 2017) Medicinal Plants for Management of Gastroesophageal Reflux Disease is a prevalent gastrointestinal disease that causes troublesome symptoms and/or complications. The major therapeutic strategy for GERD focuses mainly on symptom alleviation using proton pump inhibitors (PPIs), which does not produce a perfect response in all patients. An approach with new therapeutic agents for GERD seems to be essential. The aim of this study was to review animal and human studies investigating the effect of medicinal plants in GERD as well as mechanisms underlying their therapeutic effects. their method Medline, Scopus, and Cochrane Central Register of Controlled Trials were searched for animal or human studies. The data collected covered January 1966-October 2015.

In this paper(Petramfar et al., 2014) Insomnia is a sleep disorder which affects 10-48% of general population. Different measures, such as pharmacotherapy and behavioral management, are applied for insomnia and associated complaints. In traditional medical systems, herbal medicines are considered beneficial. Therefore, the present paper compiles pharmacological and medical insights into the management of insomnia according to Traditional Persian Medicine. Herein, preserved medical and pharmaceutical manuscripts of Persian medicine from 10th to 18th century A.D. were investigated for information about concepts of insomnia treatment and herbal remedies. Additionally, for all herbal remedies, an extensive search of scientific databases, such as MEDLINE and Scopus, has been performed to find related works concerning hypnotic, sedative, and anxiolytic as well as narcoleptic effects.

In this paper(Sahranavard, Ghafari and Mosaddegh, 2014) Antiepileptic drugs used to treat epilepsy can cause severe, life threatening side effects. In Iranian traditional medicine, herbal remedies have been used for centuries to treat seizures. In this study, the five most important herbals in Iranian traditional medicine, namely Canon were searched for the term which means epilepsy, to identify the herbs used for treatment in ancient times.

In this paper (Ramey and Rao, 2011)The “systematic literature review” as a research genre was first formulated in the field of medicine; the basic approach has since been adapted to serve the differing needs of a wide range of disciplines. The best argument for using the systematic literature review in our highly interdisciplinary field is the support it provides for searching for resources outside of the boundaries of our own literature.The weaknesses of the method fall into two main categories: strategic problems and technical problems. These weaknesses can also be considered markers of the assumptions and biases built into the method itself; they discover them primarily as they struggle to adapt a useful method to a different research culture.

In this paper (Anon., 2022)Medicinal Herbs, also called botanical medicine or herbalism, are the founding principles of modern medicines. Some may even argue that some old

recipes of herbal mixtures are better than modern medicine. These herbs have several different uses, and have been used for treating a simple cause of dry skin to radiation sickness and much more. With such a large range of known uses the possible applications of medicinal herbs is almost endless, while scientist is still discovering more and more uses for these medicinal plants still today. But to get a better understanding of medicinal herbs and their uses they will have to look at them through historical and modern uses. And the potential future uses of these seemingly magical plants.

In this paper (Tan, Lim and Lee, 2021) Herbs are plants with savory or aromatic properties that are widely used for flavoring, food, medicine or perfume. The worldwide use of herbal products for healthcare has increased tremendously over the past decades. The plethora of herb species makes recognizing the herbs remains a challenge. This has spurred great interests among the researchers on pursuing artificial intelligent methods for herb classification. This paper presents a convolutional neural network (CNN) for herb classification. The proposed CNN consists of two convolution layers, two max pooling layers, a fully-connected layer and a SoftMax layer. The RELU activation function and dropout regularization are leveraged to improve the performance of the proposed CNN. A dataset with 4067 herb images was collected for the evaluation purposes. The proposed CNN model achieves an accuracy of above 93% despite the fact that some herbs are visually similar.

In this paper (Yea et al., 2014) Since Nagoya protocol is entering into force, it has become very important issue to find alternative herb with similar efficacy. To find out alternative herbs, they adopted Mesh which contains semantic information derived from papers in the MEDLINE database which covers the medical, pharmaceutical, and biological worldwide research. Among 16 categories of Mesh, they chose 3 categories which are related to herbal efficacy. And they surveyed the advanced research addressing the Mesh semantic measure and selected the most accurate measure which is validated from the research.

In this paper (Xie et al., 2010) Climate factors govern the distribution of plant species which is the indicator of the corresponding region climate. Spatial clustering methods are an important component of spatial data mining. They obtained distribution data of more than 100 Chinese genuine regional herb plants to serve as basic data for spatial analyze. Spatial clustering algorithm based on spatial contiguity relations in GIS was used to group China counties into seven regions distinctive in climate and ecology features. The clustering results showed the eco-environment has great effects on geo-authenticities of traditional Chinese medicine materials.

In this paper (Pathirana et al., 2020) Ayurvedic means a science of life and well-being with its unique approaches to social and spiritual life. Especially in Sri Lanka they have our own set of rare Ayurvedic herbs which have been utilized by generations as medicinal treatments for a variety of diseases. Absence of specialists in this area makes proper identification as well as classification of valuable herbal plants a tedious task, which is essential for better treatment. Hence, a fully automated system for herb detection and classification, information visualization regarding them is highly desirable. There are existing applications which can identify plants with low prediction accuracies, as well as to give information regarding them.

In this paper (Visavakitcharoen, Ratanasanya and Polvichai, 2019) use of herbs is incredibly important for human and animals. Herbs have high similarity in shape, color, and texture so that there are difficulties for normal people to classify herbs. Even though plant classification technology has been developed for years, this technology is still unsolved and considered as challenging problem. This research focuses on improving herbal leaves classification. The proposed methodologies include a simple CNN structure, preprocessing process and a boost up feature technique. The proposed technique was used to improve the performance of simple CNN model. The results show that the model trained by using boost up feature technique outperforms the model conventionally trained by approximately 10% on the average.

In this paper (Asiminicesei et al., 2020) Medicinal plants started to be considered an alternative option for the treatment of certain diseases, but, nevertheless, due to environmental pollution, they can be subjected to heavy metal contamination, and this can have undesirable consequences for human health. While some herbs have visible effects due to heavy metal accumulation in tissues (chlorosis, necrosis), some may tolerate heavy metals without visible changes and may be hyper accumulative.

In this paper (Isnanto, Zahra and Julietta, 2016) Pattern Recognition on Herbs Leaves Using Region-Based Invariants Feature Extraction designed a system that can be used to identify the type of plant and its benefit in curing the disease. Recognition is based on the plant leaf pattern plants to be identified. The method used for image feature extraction is a method Hu's Seven Moments Invariant. Before extracted, a process of image segmentation uses Otsu's method. After the characteristics of the images are extracted, the system will match the data extraction to a database that was created earlier. Data matching is done by calculating the Euclidean or Canberra distance.

In this paper (Senevirathne et al., 2020) Sri Lanka is recognized and valued globally due to its rich heritage of tropical plants, herbs and trees. A need for the valuation of valuable herbs is identified among both Sri Lankans as well as tourists. This paper brings forth a solution in distinguishing medicinal herbs through leaves and flowers using deep learning and image processing algorithms via a mobile application. The proposed mobile application identifies a flower and leaf by its morphological features, such as shape, color, texture. The perspective is to achieve highest accuracy for plant identification using image processing. The proposed model revealed an accuracy of 92.5% in the classification of leaves and flowers.

In this paper (Lodh and Parekh, 2017) Recognition of flower species from natural images is a challenging task as it involves a significant amount of preprocessing to separate the actual flower from its surrounding background. The next big challenge is to represent these images mathematically so that a classification algorithm can be put into place to classify them. In this paper, the task of segmenting flower images from their natural

background is achieved by proposing and implementing a segmentation method based on average color and the variance of the color distribution. Flower images are encoded into mathematical feature vectors using combined color and GIST features.

In this paper (Bonnet et al., 2016) reports a large-scale experiment aimed at evaluating how state-of-art computer vision systems perform in identifying plants compared to human expertise. A subset of the evaluation dataset used within LifeCLEF 2014 plant identification challenge was therefore shared with volunteers of diverse expertise, ranging from the leading experts of the targeted flora to inexperienced test subjects. In total, 16 human runs were collected and evaluated comparatively to the 27 machine-based runs of LifeCLEF challenge.

In this paper (Sripian and Yusungnorn, 2015) Flower Identification System (FIS) is presented, one that classifies and provides the information from an input random flower image. The information includes the flower's scientific name, botanical information and so on. The system was developed using Python and Random Forest Classifier method. Prior to flower identification, GrabCut was used to segment the background and the foreground from the input image. The identification of flower name from the input image is done based on RGB Histogram data. The researchers found that the proposed system is able to classify flower images with an average accuracy of 80.67%, given a database of 15 different types of flowers.

In this paper (Anon., 2022a) "medicinal plant" include various types of plants used in herbalism ("herbology" or "herbal medicine"). It is the use of plants for medicinal purposes, and the study of such uses. The word "herb" has been derived from the Latin word, "herba" and an old French word "herbe". Now a days, herb refers to any part of the plant like fruit, seed, stem, bark, flower, leaf, stigma or a root, as well as a non-woody plant. Earlier, the term "herb" was only applied to non-woody plants, including those that come from trees and shrubs. These medicinal plants are also used as food, flavonoid, medicine or perfume and also in certain spiritual activities. Recipes for the treatment of common ailments such as diarrhea, constipation, hypertension, low sperm count,

dysentery and weak penile erection, piles, coated tongue, menstrual disorders, bronchial asthma, leucorrhea and fevers are given by the traditional medicine practitioners very effectively. Over the past two decades, there has been a tremendous increase in the use of herbal medicine; however, there is still a significant lack of research data in this field. Therefore since 1999, WHO has published three volumes of the WHO monographs on selected medicinal plants.

In this paper(Welzen, Slik and Alahuhta, 2005) One of the richest tropical rainforests is the Malay Archipelago, also known as Malesia (Fig.1). It reaches from the southern tip of Thai-land, throughout Malaysia and Indonesia to the Philippines and Papua New Guinea. The Milesian flora comprises an estimated 42,000species. Most species are still poorly known and only about 15% has been revised during the last 50 years. This hampers the delimitation of distribution patterns seriously, like it was the case with establishing the borders of Malesia.

In this paper (Nguyen et al., 2016) robustness of a deep Convolutional Neural Network (CNN) is presented. To select the appropriate network, they firstly implement a comparative study on evaluating performances of well-known CNNs such as Alex Net, Caffé Net, Google Net. they have concluded that Google Net archives the highest performance. By tuning network parameters, the highest performance is archived with the accuracy rate of 67.45% at rank 1 and 90.82% at rank 10 for a flower dataset of 967 species extracted from Plant CLEF 2015. These results are higher six times comparing with conventional Kernel Descriptor (KDES) techniques.

In this paper (Le et al., n.d.)they describe the system including image preprocessing, feature descriptor extraction, classification method and fusion techniques that they applied for Life CLEF 2015 - multi-organ plant identification task. In the preprocessing step, they apply relevant preprocessing techniques for each type of plants' organs based on the characteristic of the organs. For the feature descriptor, they propose to use kernel descriptor (KDES) with different types of kernels for all organs types. For flower and entire images, they combine KDES with HSV histogram. At the image level, they apply

Support Vector Machine (SVM) as a classification method. Finally, they investigate different late fusion techniques in order to build the retrieved observation list.

In this paper(Deepak Keni and Ahmed, 2016) explores and proposes leaf identification method based on color, shape, structural and textural characteristics of leaves. These features are then subjected to three different well-trained Neural Network architectures which categorically classify the leaves. A performance comparison is made between the architectures by assessing their test set classification accuracies on the leaf image database considered in this study. Plants are sine-qua-non for existence of human life. The benefits provided by plants are manifold. Plant identification is challenging but it is extremely useful for making accurate decisions regarding livestock systems, conservation and ecology. Though most plants may look similar, they might not be the same.

In this paper (Sánchez Díaz et al., 2018) A Knowledge-based Methodology for Building a Conversational Chatbot as an Intelligent Tutor presents formal methodology for designing and implementing a chatbot as an intelligent tutor for a university level course. The methodology is built upon first-order logic predicates which can be used in different commercially available tools, and focuses on two phases: knowledge abstraction and modeling, and conversation flow. As main result of this research, we propose mathematical definitions to model conversation elements, reasoning processes and conflict resolution to formalize the methodology and make it framework-independent.

In this paper (Jayalath et al., 2019)Apart from western medicine methods Ayurveda medicinal system is a very huge and better resulting medicinal technique. In these Ayurveda methods identifications of indigenous plants to predict the medicines is very important and must do very carefully. Generally main components that we use to identify a plant are leaf, flower, trunk and root etc. Among these features, we use images of leaves and flowers. To do this we are using deep learning-based CNN approaches and machine learning and technologies. Those are OpenCV, and TensorFlow classification algorithm. According to the evidences that we gathered from surveys and interviews that we conducted with the responsible parties we could find out that lots of people don't have

much knowledge about indigenous medicinal plants and their Ayurveda treatment methods.

In this paper (Kaur and Singh, 2021) Analysis of Multiple Classifiers for Herbal Plant Recognition multiple classifiers are used for automatic plant recognition based on the shape of leaf features which are extracted from the leaf images using different herbal plants. Four different classifiers have been used namely SVM, KNN, Random Forest, and Logistic regression. Shape feature is considered as an important feature among all other features like- color, texture, vein structure, etc. as a leaf is available throughout the year and leaf shape contains more features to extract. Geometric shape features that are calculated as leaf's length, width, area, perimeter, area of leaf enclosed in a rectangle, percentage of leaf in the rectangle, calculated pixels of leaf in four different quadrants are extracted during feature extraction. Among all cases, LR (Logistic regression) performed best in 7 cases while RF performed in 5 cases. SVM and LR model classifiers performed best with 95% accuracy for feature 6. KNN and RF model classifiers performed best with 90% and 93% accuracy respectively for feature 3.

In this paper (Lertnattee and Wangwattana, 2021) Knowledge management is essential to work sustainably and efficiently. From the tacit knowledge of persons who can learn and exchange information with each other, it will be used to create explicit knowledge for exchanging and integrating to work effectively in the future. Based on this approach, we created an approach to enhance medicinal plants' knowledge management skills through personalized learning. By using integrated information of medicinal plants as a model for teaching knowledge management, a tool to record personalized learning requirements for students had been developed.

In his paper (Kim et al., 2014) We used a seven-step process to identify genes involved in glycosylate biosynthesis and metabolism in the Chinese cabbage (*Brassica rapa*). We constructed an annotated data set with 34,570 uniqueness from *B. rapa* and predicted 11,526 glycosylate-related candidate genes using expression profiles generated across nine stages of development on a 47k-gene microarray. Using our multi-layered screening

method, we screened 392 transcription factors, 843 pathway genes, and 4,162 ortholog genes associated with glycosylated-related biosynthesis.

In this paper (Azeez and Rajapakse, 2019) Sri Lanka has a considerable collection of plant species that have been utilized for generations as medicinal treatments. Knowledge regarding herbal plants is restricted mainly among practitioners in traditional medicine. Available systems studied; had no proper methodology to search information regarding herbal plants, which can be identified through analyzing an image of an herbal plant given. Five herbal plant types were chosen to analyze further in detail and the images of the plants were acquired from web and also images photographed via 13MP camera creating a data set validated through traditional medical practitioners. Images were preprocessed and retrained on Inception-v3, Resnet, Mobile Net and Inception Resnet V2 based on transfer learning. Algorithm was fine-tuned using image processing techniques for preprocessing and prototype was tested 5 times reaching highest average accuracy of 95.5% on Resnet for the identification of 5 different plant types. Conclusively, this study enhanced the capability of searching herbal plants by reorganizing the information.

In this paper (Afendi et al., 2010) Indonesian herbal medicine made from a mixture of several plants. Some plants perform as main ingredients and the others as supporting ingredients. By utilizing biplot configuration, we explored the relationship between Indonesian herbal plants and the efficacy of. Among 465 plants used in 3138, we determined that 190 plants were efficacious in at least one efficacy. We therefore consider these plants to be the main ingredients. The other 275 plants are considered to be supporting ingredients because their efficacy has not been established.

In this paper (Park et al., 2010) With the advent of new technologies, human exposure to ionizing radiation has increased. Therefore, appropriate pharmacological interventions and modalities are needed to protect humans against the deleterious effects of ionizing radiation. In this work, we developed a photosensitive, high-throughput chip-based assay for exploring the antioxidant [superoxide dismutase (SOD)]/radioprotective potential of herbal plants. Red light absorption property of nitro blue tetrazolium (NBT) formazan

was applied to chip-based SOD activity measurements of six herbal plant extracts in a high-throughput manner. SOD enzyme in the photochemical reaction scavenged free radicals ($O \bullet - 2$) to form a stable carryover product (O_2 and H_2O_2). This in turn inhibited the development of NBT formazan in the reaction. Thus, the inhibition of NBT formazan production in reaction samples compared to their controls provides for measuring the SOD activity of the respective samples.

1.3. PROJECT AIM AND OBJECTIVE

1.3.1. Aim

The main aim of creating “HERBS Lens” is to give the people a definite idea about the rare herbal plants in Sri Lanka by uploading, searching or scanning a picture of a certain plant as most people are unaware of the problem.

In the future, when a person does not have a direct idea about a plant for a particular need, this web application will be of great help to him as well as a timely need among people.

1.3.2. Objectives

- As a first step, we hope to identify about valuable rare herbal plants in Sri Lanka within three months through website.
- In the next stage, we hope to provide information about the significance, value and uses of the plants identified in the website.
- Next we hope to provide information on which part ex :(plant roots, stems, leaves) of the plant a person seeks information from to make a medicine.
- Also, is a someone wants to find a herbal plant, this website will provide information on the areas where the plants is commonly found.
- Integration of Traditional Health and Medicine with Western Medicine in support of a culturally appropriate health care sector.
- To assess the herbal wealth of the state, to identify species of medicinal plants getting extinct, endangered or over exploited and to prepare agro climatic atlas of Medicinal Plants.
- Also the finally to educate, encourage and assist people for value addition, processing and manufacture of Herbal Medicines, Cosmetics and other related by- products from the Medicinal Plants in the State.
- To enhance the given input image by Image acquisition and Image pre-processing.
- Identify the affected part through texture analysis and Segmentation.
- Classify the healthy and affected leaf part by feature extraction and classification.
- Train the model by using testing data for accurate result.

1.4. PROJECT SCOPE

As mentioned above, in daily life activities, humans have been widely using herbs in medicine, food preparation, and the cosmetic industry worldwide. There are thousands and thousands of herbs, and some of them are difficult to classify due to their similarity, which makes classification highly needed for the users of these herbs. The classification of plants is still an interesting topic for researchers; however, among the different classification methods proposed in the literature, the plant roots, stems, leaves are widely used for herb classification.

Many herbal recognition apps are currently in use around the world. None of them are able to identify the herbs that exist in Sri Lanka and provide accurate information. The “Herbs Lens” web system can be introduced as a solution to this problem. This system has the ability to recognize about 5 herbs domesticated. When a photo of an herbal plant is taken using this system, it is possible to get information about its scientific name, significance and its uses. The other specialty of this system is the ease of searching if you know the name of the herb. With the onset of the corona epidemic, many people began to pay attention to Traditional medicine. For this reason, according to our analysis, many Sri Lankans have begun to seek information about herbs.

1.5. LIMITATION OF THE STUDY

1.5.1. Project Limitation

Due to the time period in which the corona outbreak spread, team members may face a lot of challenges in meetings. As a solution, it is intended to use zoom technology to communicate with members three days a week. It allows it to gather opinions and ideas from everyone while also tracking the development of the areas presently allotted to each member. All the tools used for this project are internet related. The reason for using it is so that everyone may collaborate.

We intended to visit an Ayurvedic hospital for further information on herbs because there was no other way to obtain proper information. Because the shape of certain herbs may be similar to the shape of another, it may be difficult to obtain more precise information, thus a thorough herbal test based on the shape and color of the plant was required. As a result, an evaluation of the whole plant was necessary based on the form and color of the plant. The details of the herb are shown after examining the whole plant.

1.5.2. Product Limitation

This app provides information on around 5 medicinal plants that are currently grown in home gardens in Sri Lanka. The system can be used regardless of age. Users are able to inform us if anything goes wrong.

1.6. DESIGN OVERVIEW

An architecture diagram is a visual representation of all the elements that make up part, or all, of a system. Above all, it helps the engineers, designers, stakeholders, and anyone else involved in the project understand a system or app's layout. The main purpose of architectural diagrams should be to facilitate collaboration, increase communication, and provide vision and guidance. Paint one or two high-level diagrams on the wall and use them during meetings.

This is the main structure of the system as an architecture diagram. So, in this diagram represent of the main method to step by step.

Firstly, user can open the web system and can capture the plant view. After, can upload in to the system database through the internet. In the database, doing detect the image and generated all information about the image. And finally that information sent to the user interface.

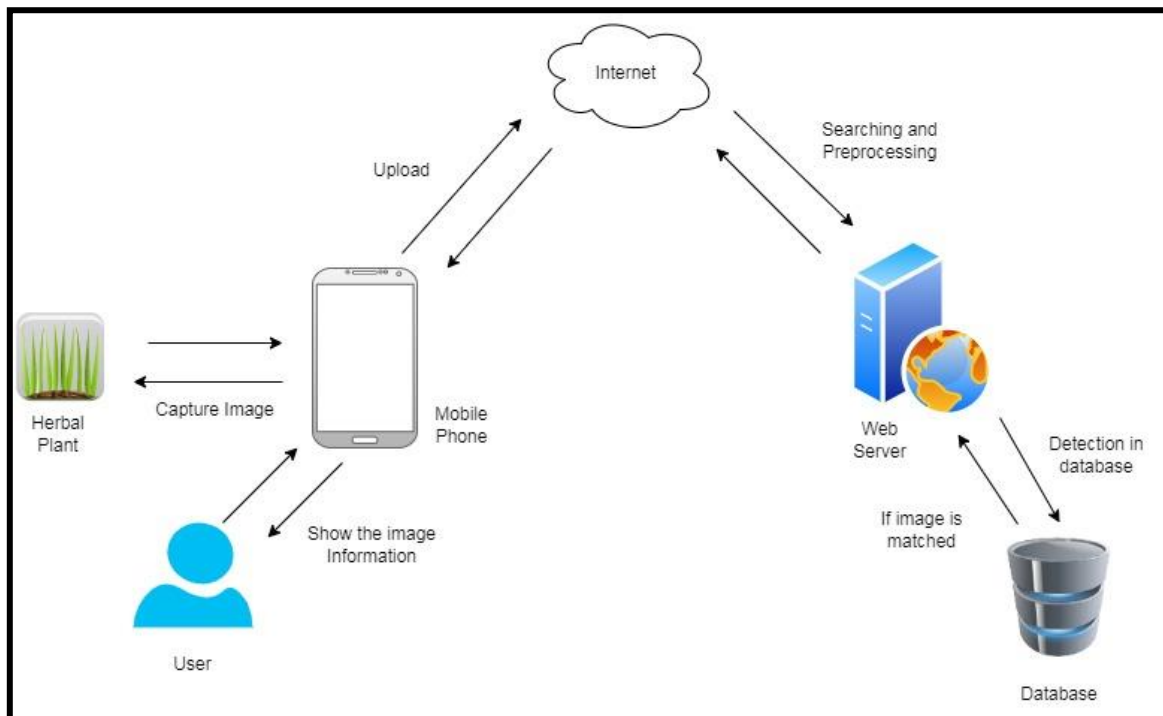


Figure 1 - 1.6 System architecture diagram

1.7. WORK BREAK DOWN STRUCTURE (WBS)

Work breakdown structure (WBS) in project management is a method for completing a complex, multi-step project. It's a way to divide and conquer large projects to get things done faster and more efficiently. The goal of a WBS is to make a large project more manageable. The benefits of creating a WBS include: it defines and organizes the work required. We started the project based on WBS. Structure of it is shown below.

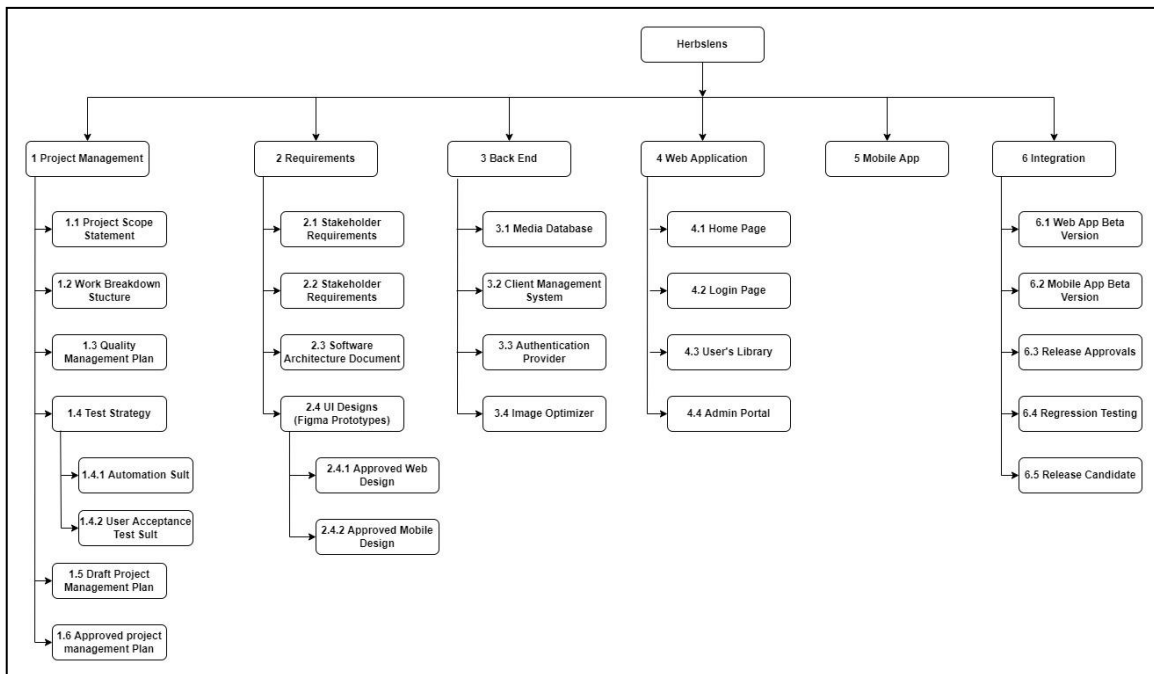


Figure 2 - 1.7 Work Break Down Structure

1.8. RESOURCE ALLOCATION (TEAM STRUCRURE, and GANTT CHART

1.8.1. TEAM STURCTURE

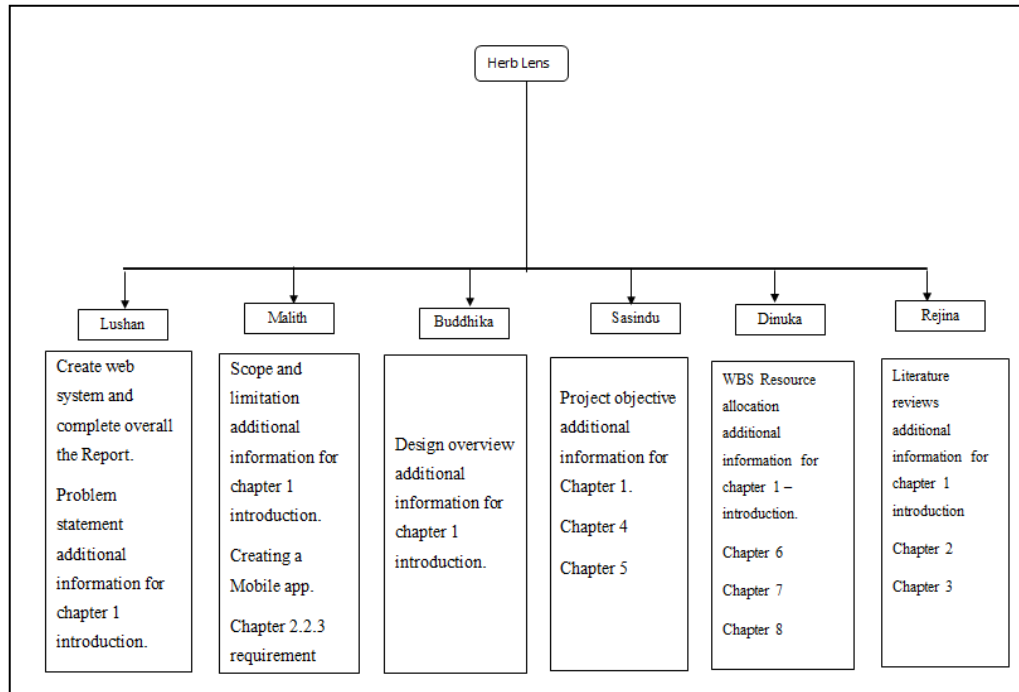


Figure 3 - 1.8.1. Team Structure

1.8.2. GANTT CHART

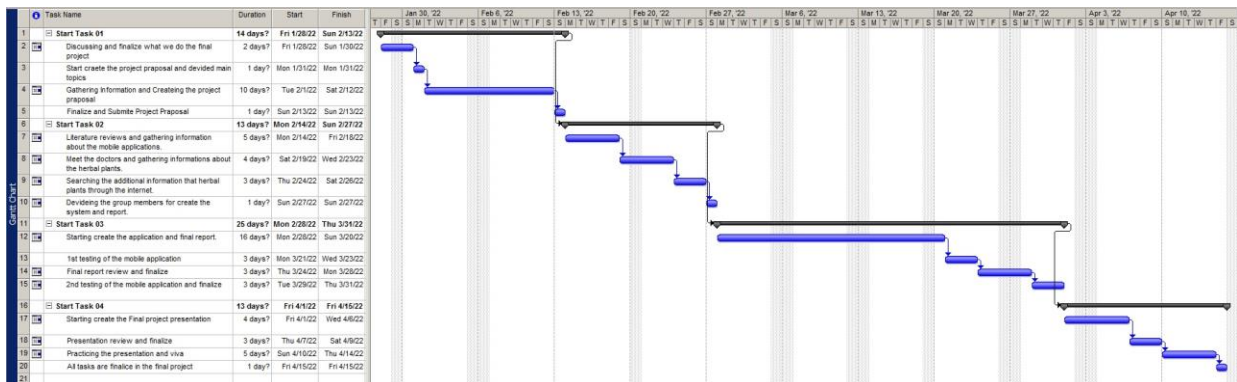


Figure 4 - 1.8.2 Gantt Chart

2. CHAPTER 2: FEASIBILITY STUDY AND REQUIREMENTS GATHERING

2.1 FEASIBILITY STUDY

Feasibility Study in Software Engineering is a study to evaluate feasibility of proposed project or system. Feasibility study is one of stage among important four stages of Software Project Management Process. As name suggests feasibility study is the feasibility analysis or it is a measure of the software product in terms of how much beneficial product development will be for the organization in a practical point of view. Feasibility study is carried out based on many purposes to analyze whether software product will be right in terms of development, implantation, contribution of project to the organization etc.

2.1.1. COST FEASIBILITY

2.1.1.1. Cost-Benefit Analysis

The process of isolating and estimating costs and benefits.in order to do a cost-benefit analysis, two sides of the ledger must be considered.

- System costs
- Benefits from the system

If a system is economically feasible, then the benefits should outweigh the system costs within a defined period of time acceptable to the user/client.

2.1.1.2. System Costs

2.1.1.2.1. Development Costs

One-time expenses for the project. Estimates improve as more detail is given.

- Personnel Costs
Salaries of all individuals who develop the system also includes benefits

- User Time
- Training Costs
- Equipment Costs

Cost of acquiring all new hardware/software for project.

If the equipment is shared, then divide the total cost or compute it proportional to its usage.

Also cost of new furniture, chairs, etc. if needed.

- Computer Usage Costs
- Supply and Materials Costs

Hardware, software and office supply consumed costs of manuals and other documentation too.

- Facility Costs

Expenditures necessary to prepare the site for the new system.

- Overhead and Miscellaneous Expenses rent, utilities, training course fees, etc. cost of running two parallel systems.

2.1.1.2.2. Ongoing Operating Costs

- Recurring costs for the operation of the system
- All of the development costs required on an ongoing basis: personnel, equipment, maintenance, overhead, etc.

2.1.1.2.3. Fixed Costs

- Occur at regular intervals
- Costs are not dependent upon the operation of the system
- Constant, no matter how much or little the system is used
e.g., property taxes, lease payments must be paid monthly
- Also, company benefit plans (i.e., hospital coverage)

2.1.1.2.4. Variable Costs

- Occur in proportion to the usage of the system
- CPU costs
- Supply costs
- Wage costs
- Some maintenance costs

2.1.1.3. Benefits

Normally increase profits or decrease costs.

2.1.1.3.1. Performance Benefits

- To improve the quality of work or to permit new activities to be undertaken.
- Common performance benefits might be error reduction, increased speed of activity, and access to information that was not previously available.

2.1.1.3.2. Cost-Avoidance Benefits

- Clerical errors will be avoided with new system, and now costing for the herb lens 100,000 annually.
- Herb lens will not have to hire two additional employees with new system.

2.1.1.3.3. Tangible Benefits

- Can be estimated quite accurately.
- Usually measured in terms of monthly or annual savings or profit Staff Reductions.
- Savings on Production Faster Cycle Time Manufacture a new Part.

2.1.1.3.4. Intangible Benefits

- Difficult or impossible to quantify Goodwill
- Environmentally Friendly

- Three different methods to quantify intangible benefits

Method 1: Subjective Estimation

- users make estimates based on gut feel or experience
- no way to validate
- analyst should document and append to Cost-Benefit Report

Method 2: Decision Theory (i.e. Expected Values)

- assign probabilities to various outcomes
- better working conditions will reduce employee turnover
- requires estimation of the extent of the reduction
- estimate savings since retraining not required

I. By what percentage will turnover be reduced?

20% chance of 5% reduction

50% chance of 4% reduction

30% chance of 3% reduction

Turnover reduced by $.2(.05) + .5(.04) + .3(.03) = 3.9\%$ Current turnover is 100 people/year

New system only 96.1 people/year leave

II. Determine how much this will save:

Termination Pay = 10,200/=

Recruitment Costs = 20,000/=

Replacement Salary and Overhead = 120,500/=

Training Costs = 30,000/=

TOTAL = 160,700/=

Therefore, benefit of better working conditions is $3.9 \times 160,700 = 626,730/=$

Method 3: Working Backwards from Desired Results

- Using Method 2 example:
- Savings of a person not leaving is 160,700/=
- Company requires an annual benefit of 100,000/=
- Then must be able to reduce turnover by 5.35 people

2.1.1.4. Cost-Benefit Terminology

- i. Spending vs Investment
 - Spending is the purchase of what is needed to keep the operation viable
 - Investments are monies spent which should generate revenue - a new system is an investment in most situations
 - If benefits are less than costs, then system is not worth doing!
 - The goal is to maximize revenue
- ii. Direct versus Indirect Costs and Benefits
 - Direct costs and benefits can be specifically attributable to the system
 - Indirect costs and benefits are expenses or revenue that are shared with other components of the organization (corporate management would generally allocate such costs and benefits)
- iii. Economic Life
 - Period of time the investment is expected to yield benefits
 - Projects into the future
 - After the economic life is determined, can classify costs as fixed or variable
 - Costs of existing facilities present during economic life of investment are fixed - all other costs are variable

- iv. Residual Value
 - Value of the parts of the existing system that can be salvaged
 - Results in reduced cost of the replacement system
 - Usually estimated as a percent of the new system's development cost

- v. Sunk Costs
 - Costs related to an investment which have already been paid out

- vi. Discount Rate
 - opportunity cost of being able to invest money in other projects (or investments) expressed as a percentage
 - could also be the acceptable return on its investments

- vii. Required Rate of Return
 - minimum rate of return that a company can accept
 - theoretically, the cost of raising capital (or discount rate)

2.1.2. TIME FEASIBILITY

A time feasibility study takes into account the period needed to complete the project. It is a measure of the reasonability of a project and thus determines whether the deadline is desirable or mandatory or not.

In Schedule Feasibility Study mainly timelines/deadlines are analyzed for proposed project which includes how many times teams will take to complete final project which has a great impact on the organization as purpose of project may fail if it can't be completed on time.

2.1.3. TECHNICAL FEASIBILITY

In Technical Feasibility current resources both hardware software along with required technology are analyzed/assessed to develop project. This technical feasibility study gives report whether there exists correct required resources and technologies which will be used for project development. Along with this, feasibility study also analyzes technical skills and capabilities of technical team, existing technology can be used or not, maintenance and up-gradation is easy or not for chosen technology etc.

- Often computer-oriented
- Is the solution practical?
- Do we have the technology now?
- Do we have the technical expertise and time?

2.1.4. OPERATIONAL FEASIBILITY

In Operational Feasibility degree of providing service to requirements is analyzed along with how much easy product will be to operate and maintenance after deployment. Along with these other operational scopes are determining usability of product, determining suggested solution by software development team is acceptable or not etc.

- Centered on human factors (ie. ergonomics, desire to have a new computer system)
- Is the problem worth solving?
- How do the clients feel about the problem?
- Are there unread reports being generated?

2.1.5. ECONOMIC FEASIBILITY

In Economic Feasibility study cost and benefit of the project is analyzed. Means under this feasibility study a detail analysis is carried out what will be cost of the project for development which includes all required cost for final development like hardware and software resource required, design and development cost and operational cost and so on.

After that it is analyzed whether project will be beneficial in terms of finance for organization or not.

- Costs and benefits.
- Early estimates based on rule of thumb.
- Refined successively until we have a complete Cost-Benefit Analysis.
- Often all three feasibility measures will not point to the same alternative.
- Example- an herbs lens system is operationally desirable, but the technology may not exist or is too costly to implement.
- Clients and the analysts must evaluate the results of the feasibility study and make decisions together based on the results.

2.2. REQUIREMENTS GATHERING

Our project, whether it is software or not, has its own requirements that define the “what” and “why” of the project. These requirements are compiled and finalized through thorough requirements elicitation, documentation, and understanding the requirements.

Requirement’s elicitation involves fetching the business requirements from the stakeholders in order to comprehend the user needs.

Then the obtained information is documented, stating the purpose and goals of the project in detail, in the next step known as requirements documentation. This document is referred by the development team, throughout the software lifecycle to align the project with the goals of the stakeholders.

Requirements understanding comprises analyzing the requirements documentation and planning the process and time to achieve the desired results.

These three processes are often ignored when the budget and time are restricted for a project. This can lead to building a project that doesn’t fulfill the people and our customer

needs. So, the process of requirements gathering is critical for both the development team and our people.

2.2.1 SELECTING THE SUITABLE FACT GATHERING TECHNIQUE

- A sampling of existing documentation, forms, and databases
- Research and Site visits
- Observation of the work environment
- Questionnaires
- Interviews
- Prototyping
- Joint requirements planning

2.2.2 FACT GATHERING USING SELECTED TECHNIQUES

2.2.2.1 QUESTIONER

Quiz is a method of finding useful information to gather information from a large number of users. Users fill in the questions provided by the system analyst and provide answers to the system analyst. The questionnaire can save time because the system analyst does not need to interview individual users and the shorter the duration of the interview, the more useful the questionnaire will be.

In this way we also created a questionnaire for our system and sent it to a doctor and a medical student to gather information.

Google form link

<https://forms.gle/3yi5KSVvTu7pWHPF6>



A WEB APPLICATION SYSTEM FOR RECOGNIZE TO THE HERBS USING PICTURES

Requirement Gathering for Herbs Lens Web Application System.

We are students at ICBT Campus. We need to gather some information about traditional and Ayurvedic herbal plants for our final project.
So, this is our list of forms and there are 10 questions.

1. Are there any differences between traditional medicine and Ayurvedic

Long answer text

2. Is there more to Western medicine than traditional medicine and why?

Long answer text

Figure 5 - 2.2.2.1 Questionnaire Sample

2.2.2.2 DOCUMENT REVIEW

The best way to analyze an existing system is to gather information from existing documents rather than human sources. There are various documents to add facts from the existing documents.

These include emails, customer complaints, suggestion box notes, and problem area performance review document reports, completed manual forms and report samples, samples of completed computerized templates, and various types of streams and diagrams, program documentation, and user training. Manuals included. The system analyst uses sampling techniques to organize the above documents.

We also gathered information through the use of various books. The local herbal plant book was very helpful for that.



Figure 6 - 2.2.2.2 Document Review sample

2.2.2.3 WEB SITE VISITS

Research and site tours, second technology, the process of examining previously solved problems by human or other sources that could be documents. To address the needs of the problem, the analyst visits other agencies that have previously encountered similar problems. In addition, the analyst can find information in the database, reference books, case studies, and the Internet.

Thus, we used a large number of different research papers and gathered information from a large web site.

2.2.2.4 STUDY OF SIMILAR SYSTEMS

We have collected information from a number of similar systems and implemented this system in conjunction with a system similar to ours.

2.2.3 REQUIREMENTS DETERMINATION

The main reason for creating this web application was the lack of a proper method to identify herbs. From our observation we can see that many people in today's society have no knowledge of herbs. Although many people know the names of the herbs, they have never seen them. At present, many herbal plants are threatened with extinction and some plants are difficult to find. For these reasons, we began to collect data on herbs. The first step is to collect data on 5 herbs that are found in the garden in everyday life.

1. Centella asiatica - (ഗോപുക്കോල)
2. Aloe vera (കേഴ്‌മാറിക്)
3. Indian sarsaparilla (ഉറുമ്പി)
4. Neem Tree (കോതോലി)

You can find one of these in any part of the island. Also, there are many different varieties of gotu kola that can be found all over the world. We were able to find a lot more information than we normally know.

2.2.4 RESOURCE IDENTIFICATION

3.2.4.1 HARDWARE

Primarily, this web application was used to create sublime text ide and to develop the xampp server as a server. The mobile phone app used google firebase to store data while using android studio when creating the app. The teachable machine learning tool was used to find the herbs in the application created for the mobile phone application.

3.2.4.2 SOFTWARE

It can be used on any computer or mobile phone that can connect to the Internet. Phones must be running Android 6.0. Computers do not require a webcam. When a picture of a medicinal plant is uploaded to a web application, only the relevant information is displayed.

3. CHAPTER 3: DOMAIN INVESTIGATION

3.1. TECHNICAL RESEARCH

The main reason for creating the Herbs Lens web application was because the current generation has no knowledge of herbs and cannot identify them. Although there are many applications in the world, it is not possible to identify the herbs found in Sri Lanka.html, css, bootstrap, and php were used to create the web application. Use different criteria for identifying herbs. For years, scientists have used various processing tools to identify the properties of herbs. Many leaves were used for this purpose and their shape and color made it difficult to identify. Currently we have selected only a few herbs that grow around the garden. This web application stores relevant information in mysql server. Here users can see only the details of the herbs that are currently included. There are 2 sides and the user must first register here. Ability to insert images from the user side.If the information about the herb that the user uploads is not in the system, it will not be displayed. Here we have used our own database for this This system has 5 main types of herbs and they are photographed in various forms. Only 5 herbs can be identified at a time.

In addition, a mobile application has begun to be created. Having a mobile app is very advantageous. The reason is that today everyone has a mobile phone in their hand and is able to see the details of herbs and other plants found in daily life. The mobile app can also identify only 5 herbs. All the data here is stored through Google firebase. Steps have also been taken to facilitate the use of this app by registered users of the web app.

4. CHAPTER 4: DESIGN

4.1 DESIGN OVERVIEW

We created this “**Herb Lence**” website to give the people a definite idea about the rare herbal plants in Sri Lanka by uploading, searching or scanning a picture of a certain plant as most people are unaware of the problem.

Here when a person does not have a direct idea about a plant for a particular need, this web application will be of great help to him as well as a timely need among people.

4.1.1. Design Objectives

Here we have identified the basic requirements for creating this website and designed the diagrams required to create this website based on those requirements.

We have designed these diagrams using an online diagram design tool called Draw-io.

4.1.2. System Design

We have followed two methods in creating this diagram here. They are,

1. Functional Oriented Design
2. Object Oriented Design

- **What is functional oriented design?**

Function Oriented Design is an approach to software design where the design is decomposed into a set of interacting units where each unit has a clearly defined function.

Here we have designed the context diagram, DFD diagrams and structure diagram under the functional oriented method.

- **What is object oriented design?**

Object-oriented design (OOD) is the process of using an object-oriented methodology to design a computing system or application. This technique enables the implementation of a software solution based on the concepts of objects.

Here we have designed the use case diagram, class diagram, sequence diagram and activity diagram under the object oriented design method.

You can see those diagrams below.

4.2 SOFTWARE SYSTEM DESIGN

4.2.1 CONTEXT DIAGRAM

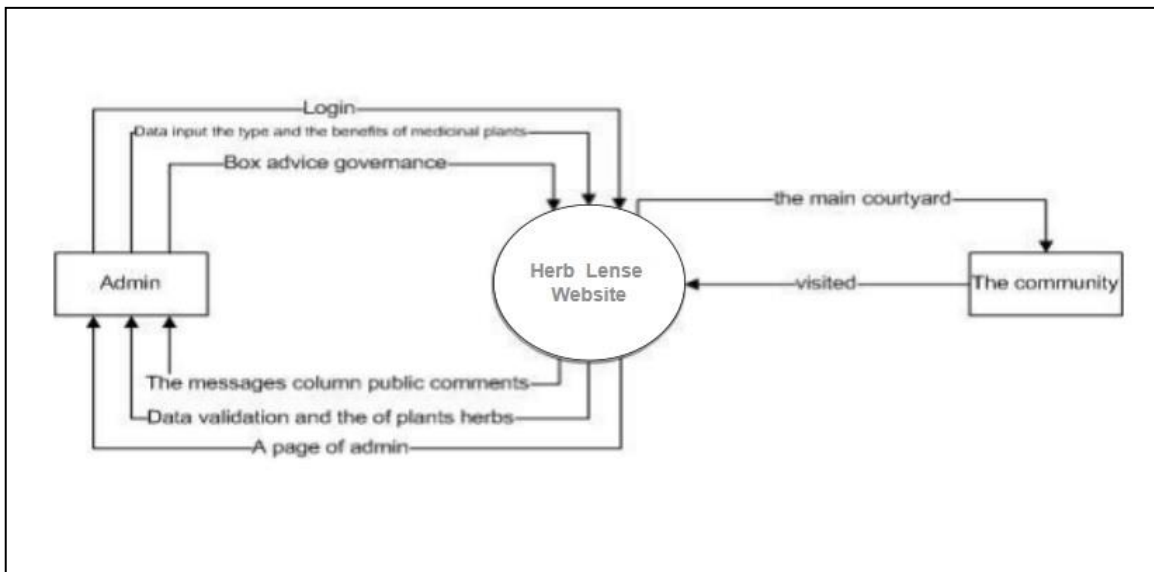


Figure 7 - 4.2.1 Context Diagram

4.2.2 0TH LEVEL DFD

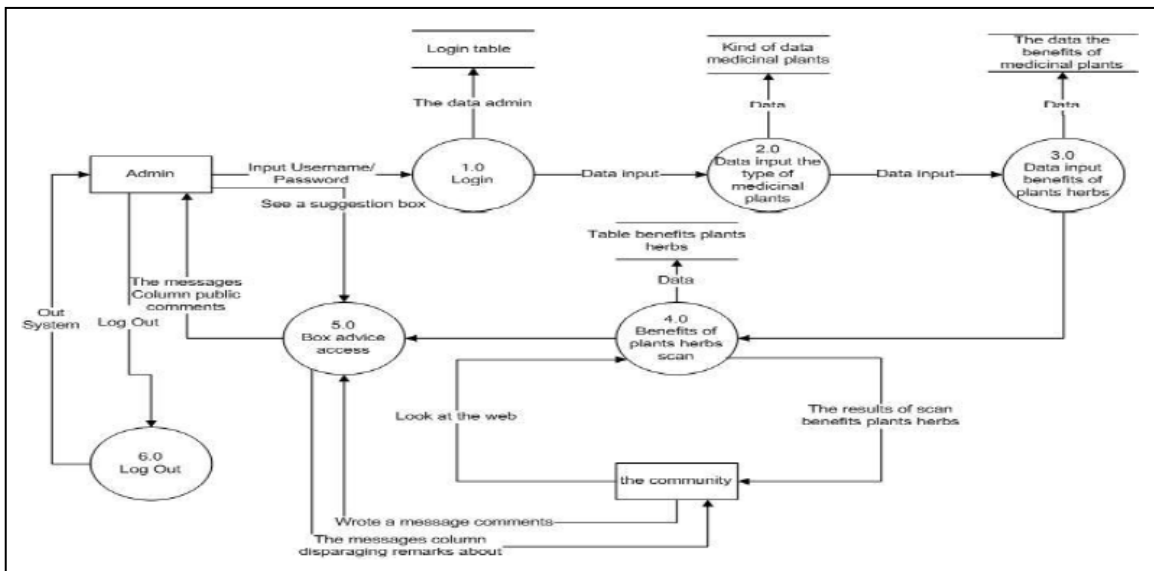


Figure 8 - 4.2.2 0th Level DFD

4.2.3 1ST LEVEL DFD

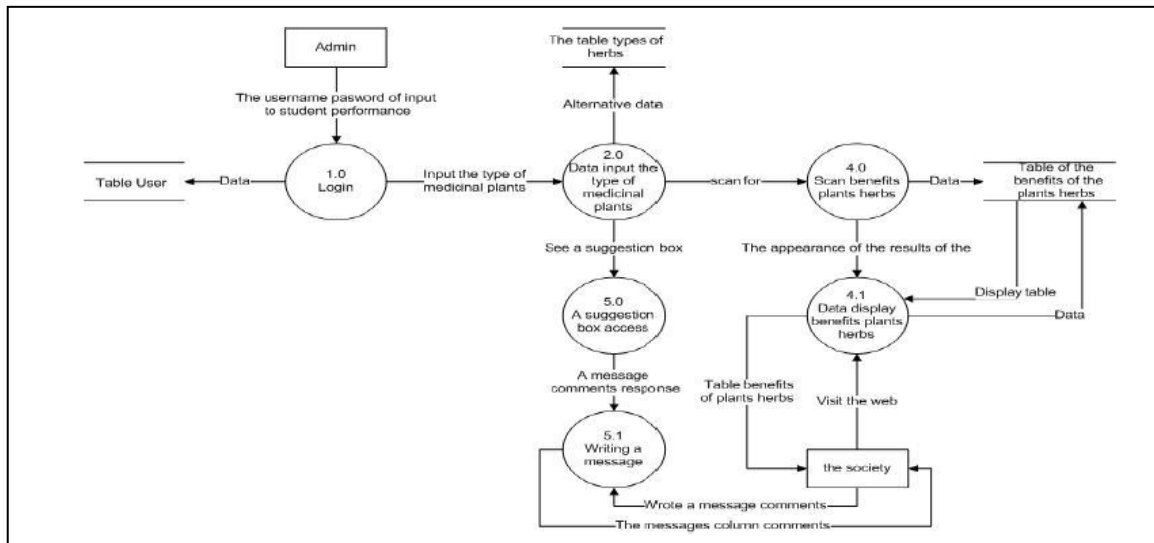


Figure 9 - 4.2.3 1st Level DFD

4.2.4 STRUCTURE CHART

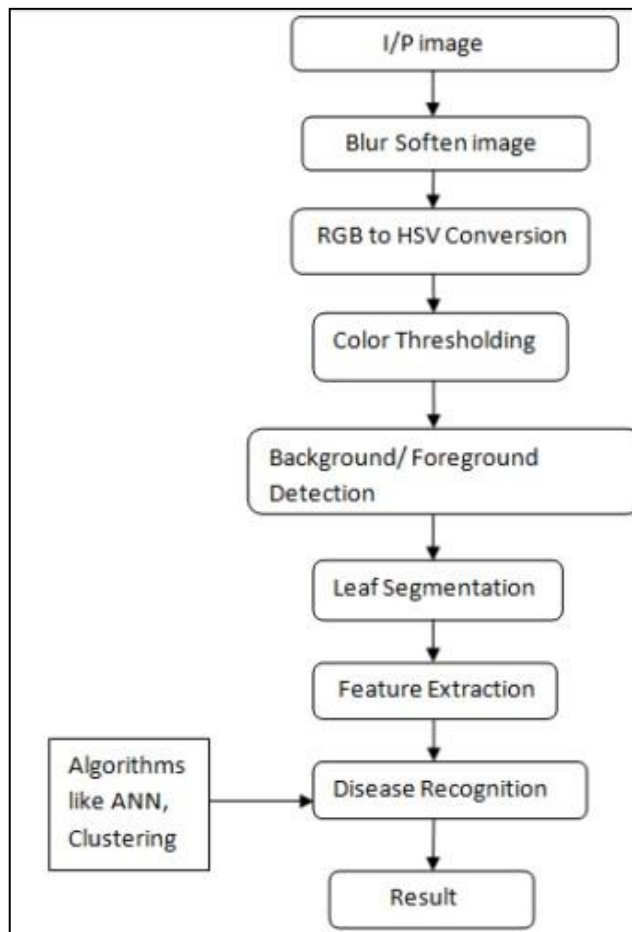


Figure 10 - 4.2.4 Structure Chart

4.2.5 USE CASE DIAGRAM

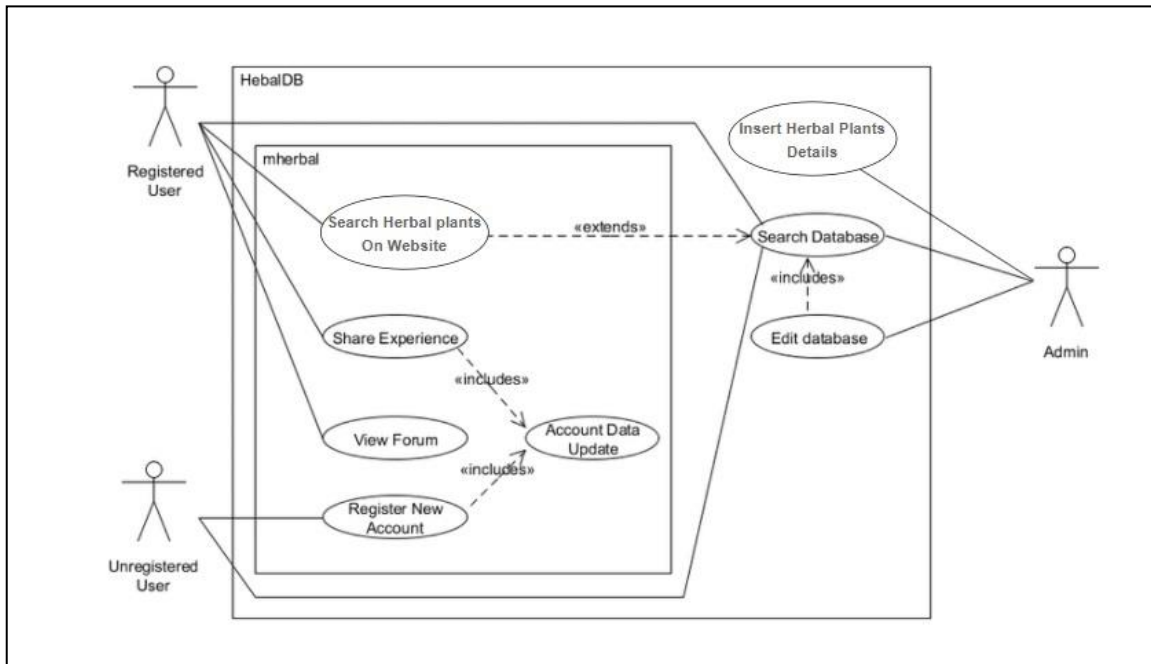


Figure 11 - 4.2.5 Use Case Diagram

4.2.6 CLASS DIAGRAM

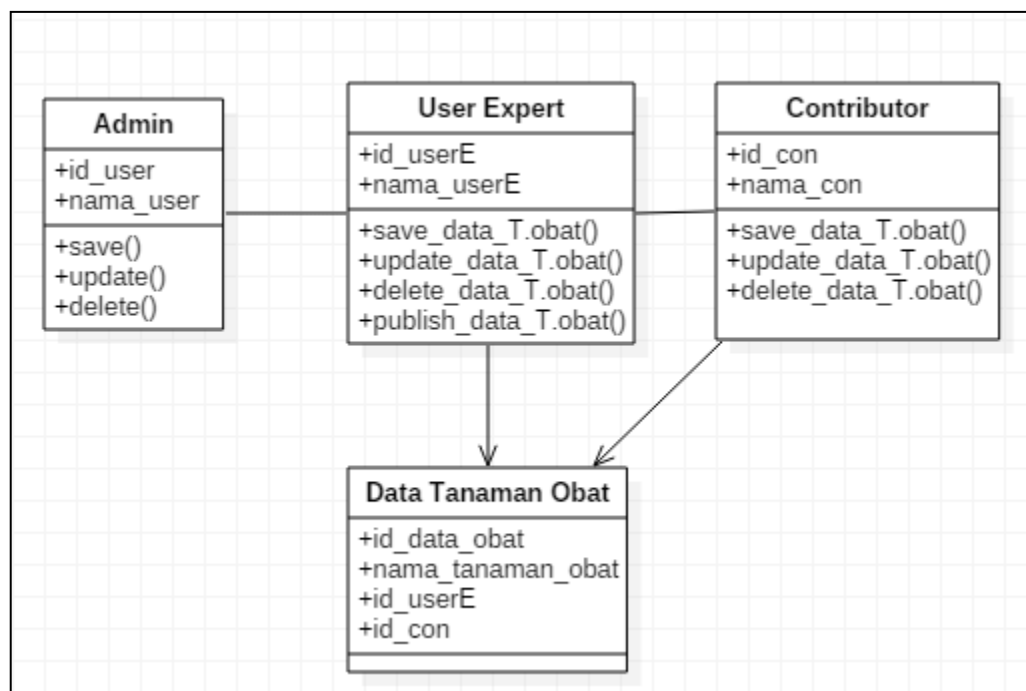


Figure 12 – 4.2.6. Class Diagram

4.2.7 SEQUENCE DIAGRAM

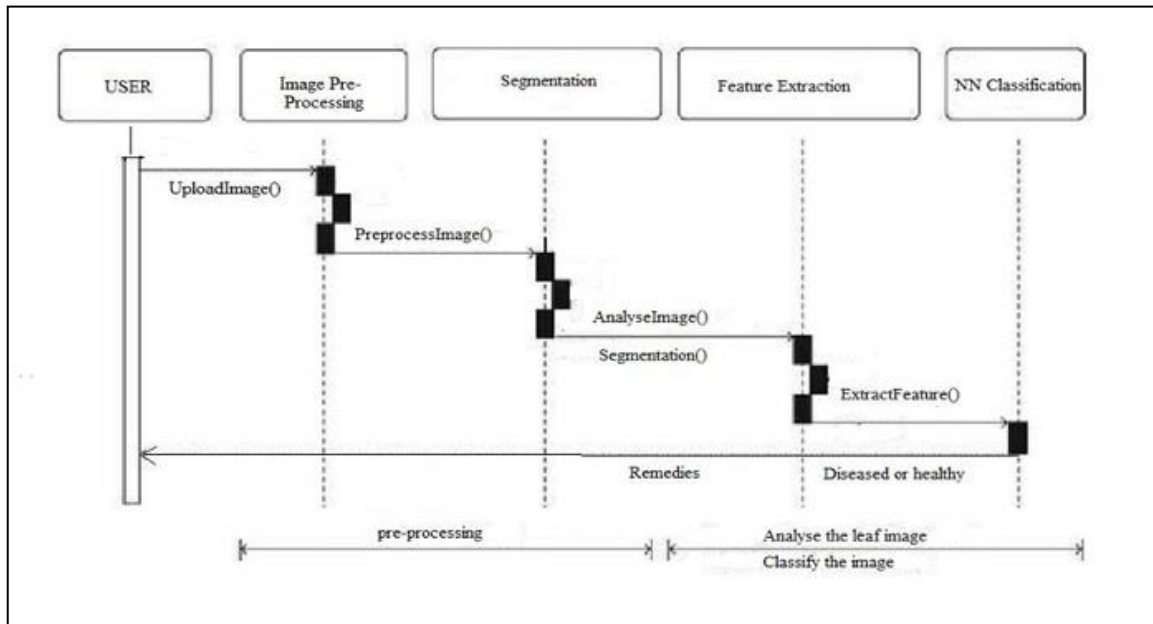


Figure 13 – 4.2.7. Sequence Diagram

4.2.8 ACTIVITY DIAGRAM

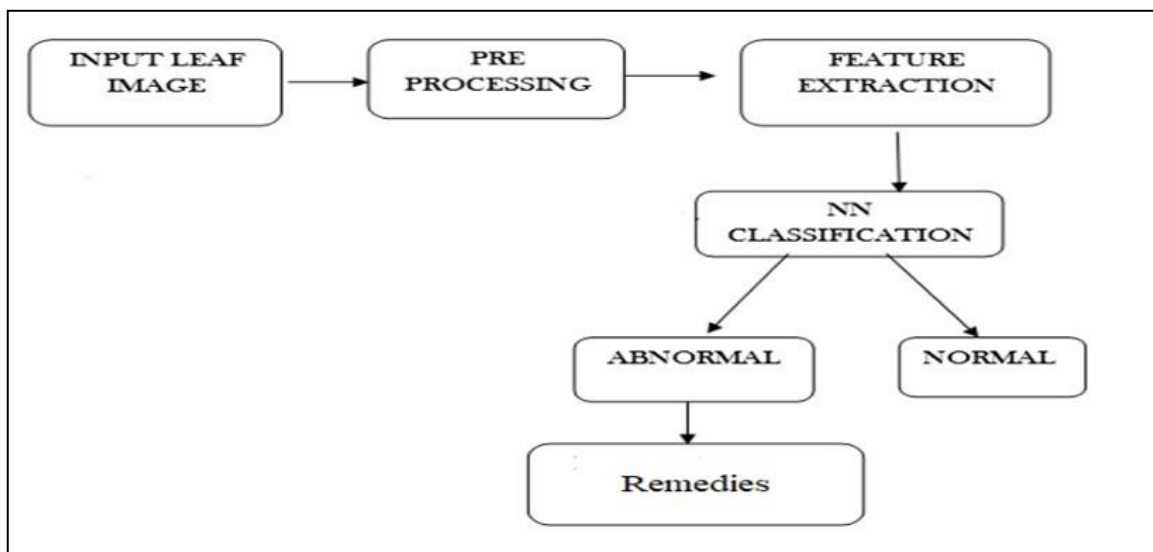


Figure 14 – 4.2.8. Activity Diagram

4.2.9 COLLABORATE DIAGRAM

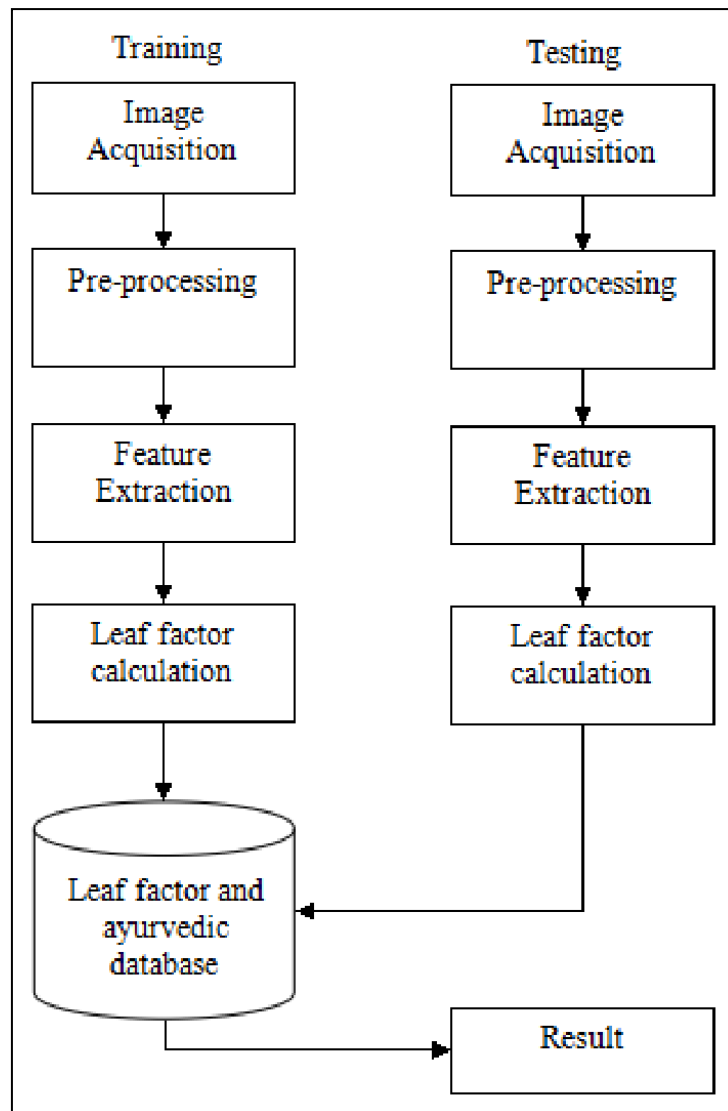


Figure 15 – 4.2.9. Collaborate Diagram

5. CHAPTER 5: TESTING

TEST PLAN

FOR

HERBS LENS

Prepared by Group B

Guided by ICBT Campus

07st of April 2022

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5.1. Introduction

This test plan describes part by part how the whole system works in main interface. User login, Admin login, choose items and Order items the functionality of the parts is presented by the test case. Another purpose of this testing is to see if every component of the website is working flawlessly. Here we test all the software, hardware and environmental aspects of this website.

5.2. Objectives

The following are test cases on a number of key components of the overall system. It is my intention to give you an idea of the functionality of the entire system.

5.3. Functional Testing

Functional Testing is a type of Software Testing in which the system is tested against the functional requirements and specifications. It is basically defined as a type of testing which verifies that each function of the software application works in conformance with the requirement and specification.

5.4. Non-functional Testing

This includes working with weight testing, risk testing, stress testing, minimum system requirements and database functionality in the Cheap Store online website.

5.5. Features to be tested/ not to be tested

The system will perform tests to test that all functionality must be verified as shown in Use case diagram, ER diagram and DFD diagrams. By verifying this, the plan works as expected by the developers and meets the requirements.

5.6. Pass/ Fail criteria

The exact pass/fail criteria for load and stress testing is to be determined by ITS. However, in a general sense, if the website performs to an acceptable degree after it has been put under a certain capacity, then the test item will pass. On the contrary, the test item will fail if the website underperforms.

5.7. Testing Materials

5.7.1. Hardware Requirements

A machine with,

1. Windows 7, Windows 8, Windows 10
2. RAM should be minimum 2GB
3. Processor should be minimum dual core

5.7.2. Software Requirements

1. Need Google Chrome
2. Need XAMP Server
3. Need Sublime Text Software

5.8. Scope

The following are test cases related to key parts of the system.

| <ul style="list-style-type: none"> • User Login <ol style="list-style-type: none"> 1. Test Case :- User login 2. System: - Herb Lens web application 3. Designed by: - Team B 4. Short Description: - User login to upload images 5. Test case name: - User Login 6. Subsystem: - Username & Password 7. Design date: - 02.04.2022 8. Executed date:- 15.01.2022 | | | | | | | | |
|--|---|---|---|---|-----------------------|--|---------|--|
| TC_ID | Test Case | Pre-Condition | Test Steps | Test Data | Expected Results | Post Condition | Results | Comment |
| User Login | Enter valid Username and invalid Password | Need a valid Username and password to login | 1. Enter Username 2. Enter password 3. Touch 'Login' button | <Valid user name> <Invalid password> | Display Error Message | Incorrect Username / Password | Fail | I'm entered the wrong password. |
| User Login | Enter invalid Username and valid Password | Need a valid Username and password to login | 1. Enter Username 2. Enter password 3. Touch 'Login' button | <Invalid user name> <Valid password> | Display Error Message | Incorrect Username / Password | Fail | I'm entered the wrong Username. |
| User Login | Enter valid Username and valid Password | Need a valid Username and password to login | 1. Enter Username 2. Enter Username 3. Touch 'Login' button | <Valid user name> <Valid password> | Login next page. | Login success! Redirecting you to home page... | Pass | I'm in. |
| User Login | Enter invalid Username and invalid Password | Need a valid Username and password to login | 1. Enter Username | <Invalid user name> | Display Error Message | Incorrect Username / Password | Fail | I'm entered the wrong Username & password. |

Figure 16 - 5.8. Scope - User Login

User Login

Incorrect Username / Password

Username

lushan

Password

.....

Login

Register

Reset Password

Clear

User Login

Login success! Redirecting you to home page...

Username

lushan

Password

.....

Login

Register

Reset Password

Clear

| <ul style="list-style-type: none"> Admin login <ol style="list-style-type: none"> Test Case :- Adminlogin System:- Herb Lens web application Designed by :- Team B Short Description :- Adminlogin to Herb Lense Test case name :- Admin Login Subsystem :- Email & Password Design date :- 15.01.2022 Executed date :- 15.01.2022 | | | | | | | | |
|---|--|--|-------------------------|---------------------|-----------------------|-----------------------|---------|---|
| TC_ID | Test Case | Pre-Condition | Test Steps | Test Data | Expected Results | Post Condition | Results | Comment |
| User Login | Enter valid Email and invalid Password | Need a valid email and password to login | 1. Enter email | <Valid user name> | Display Error Message | Wrong email/password | Fail | I'm entered the wrong password. |
| | | | 2. Enter password | <Invalid password> | | | | |
| | | | 3. Touch 'Login' button | | | | | |
| User Login | Enter invalid Email and valid Password | Need a valid email and password to login | 1. Enter email | <Invalid user name> | Display Error Message | Wrong email/password | Fail | I'm entered the wrong email. |
| | | | 2. Enter password | <Valid password> | | | | |
| | | | Touch 'Login' button | | | | | |
| User Login | Enter valid Email and valid Password | Need a valid email and password to login | 1. Enter email | <Valid user name> | Login next page. | You are now logged in | Pass | I'm in. |
| | | | 2. Enter password | <Valid password> | | | | |
| | | | Touch 'Login' button | | | | | |
| User Login | Enter invalid Email and invalid Password | Need a valid email and password to login | 1. Enter email | <Invalid user name> | Display Error Message | Wrong email/password | Fail | I'm entered the wrong email & password. |
| | | | 2. Enter password | <Invalid password> | | | | |
| | | | Touch 'Login' button | | | | | |

Figure 17 - 5.8. Scope - Admin Login

The screenshot shows a web form titled "Admin Login" with a green header. Below the header, there is a red-bordered box containing the text "Wrong email/password combination". Underneath this, there are two input fields labeled "Email" and "Password". Below the "Password" field, there is a blue link that says "Forgot Password?". At the bottom of the form, there is a green button labeled "Login". Below the button, there is a text prompt "Not yet a member?" followed by a blue link that says "Sign up".

| <ul style="list-style-type: none"> • Add plant <ol style="list-style-type: none"> 1. Test Case: - Add plant 2. System: - Herb Lens 3. Designed by: - Team B 4. Short Description: - Add a plant to database 5. Test case name: - Add plant 6. Design date: - 29.04.2022 7. Executed date: - 29.04.2022 | | | | | | | | |
|--|---------------------|--------------------|-------------------------|--------------------|-----------------------|---------------------------------|---------|---------------------------|
| TC_ID | Test Case | Pre-Condition | Test Steps | Test Data | Expected Results | Post Condition | Results | Comment |
| Add plant | Enter valid details | Need valid details | 4. Enter Names | <Valid names> | Display Error Message | Please select an image | Fail | I'm not selected an image |
| | | | 5. Select Image | <Blank> | | | | |
| | | | 6. Touch 'Add' button | | | | | |
| Add plant | Enter valid details | Need valid details | 7. Enter Names | <Blank> | Display Error Message | Please enter all fields details | Fail | I'm not entered names |
| | | | 8. Select Image | <Select image> | | | | |
| | | | 4. Touch 'Add' button | | | | | |
| Add plant | Enter valid details | Need valid details | 4. Enter names | <Valid names> | Login next page. | Plant added to database. | Pass | I'm in. |
| | | | 5. Select image | <Select image> | | | | |
| | | | 6. Touch 'Add' button | | | | | |
| | | | 2. Enter password | <Invalid password> | | | | |
| | | | 3. Touch 'Login' button | | | | | |

Figure 18 - 5.8. Scope - Add plant

Plant added to database.

Scientific Name
Plant ID

Hemidesmus pubescens Wight & Ar
57

Sinhala Name

Iramusu

English Name

Indian sarsaparilla

Description

It is a slender, laticiferous, prostrate, twining herb, or sometimes semi-erect shrub; roots woody and aromatic; stems numerous, slender, terete, thickened at the nodes. Leaves opposite, short-petiolated, very variable, elliptic-oblong to linear-lanceolate, Inflorescences cymes. Flowers axillary.

Treatment for

- Scabies
- Skin rashes
- Coughs
- Asthma
- Piles

Parts used in Treatment

Herbs Lens
Welcome | Log Out

Add Herbal Plant

Search
Reports

Herbs Details

Herbs
Upload Image

Please enter all fields details

Scientific Name
Plant ID

57

Sinhala Name

English Name

Description

Treatment for

| <ul style="list-style-type: none"> • User upload image <ol style="list-style-type: none"> 1. Test Case: - User upload image 2. System: - Herb Lens web application 3. Designed by: - Team B 4. Short Description: - User Upload image 5. Test case name to Herb Lens 6. Subsystem: - Image Upload 7. Design date: - 02.04.2022 8. Executed date: - 15.01.2022 | | | | | | | | |
|---|-----------------|-----------------|--------------------------------|--------------------|-----------------------|------------------------------|---------|---------------------------|
| TC_ID | Test Case | Pre-Condition | Test Steps | Test Data | Expected Results | Post Condition | Results | Comment |
| Upload Image | Upload an Image | Select an image | 1. Select Image | <Select Image> | Login next page. | Image uploaded successfully. | Pass | I'm selected an Image |
| | | | 2. Touch 'Upload Image' button | | | | | |
| Upload Image | Upload an Image | Select an image | 1. Select Image | <Not select image> | Display Error Message | Please select an image. | Fail | I'm not selected an image |
| | | | 2. Touch 'Upload Image' button | | | | | |

Figure 19 - 5.8. Scope - User Upload image

5.9 Assumptions

- Assumptions have been used for several key instances in this system from the beginning.
- These test cases are created by assuming that the system sees the customer's face through the entire system.
- It also shows the admin interface.
- Since search and order are two main parts, the relevant action is also shown by the test cases.

6. CHAPTER 6: MAINTENANCE

6.1. OVERVIEW OF MAINTENANCE

Website maintenance is important as there is a new update every day. Website is the first digital location where we interact with our users. This process is essential for every brand, big or small, to look around for website maintenance services to stay up-to-date on navigation, page layout, relevant content, optimal keywords, and internal links.

A website is not just about developing, designing and deploying it on a server. Post-development maintenance and updates are essential for training to ensure continuous traffic growth and safety. Also, regular maintenance plays an important role in improving Google rankings and strengthening the website's SEO.

Having a well-maintained and up-to-date website is a significant requirement for wider and smaller companies, taking into account market competition. Websites that do not have maintenance face errors that are more likely to drive their users away. On the other hand, the overall health of a website is equal to your health; If we do not check regularly, it is vulnerable to potential vulnerabilities such as cyber-attacks and malware.

The Herb Lens Development Team regularly covers the following functions for maintenance:

- Check the loading speed of your web pages. Look for things that slow it down.
- Our website can generate tons of cached data. Removing this data can significantly improve the overall speed of your website.
- Run a security scan on our website to detect any potential security threats. If we find something unusual, take immediate action.
- Analyze previous month's statistics on the website.
- The more content we publish on our website, the better it will be for traffic.

7. CHAPTER 7: CRITICAL EVALUATION AND CONCLUSION

7.1. SUMMARY OF THE PROJECT

This project discusses a major problem in the society and proposes a major solution to it.

First, the problem identification and its solution are also mentioned in the early stages of the project. We then looked to see if this issue had been resolved and observed that our project needed to change. Next, gather the basics and information of a project.

The diagram then describes how the system was designed and finally tested and monitored. Also, Herbs Lens, the interface of our system, is applied to the project by screenshots.

7.2. EVALUATION OF THE SOLUTION

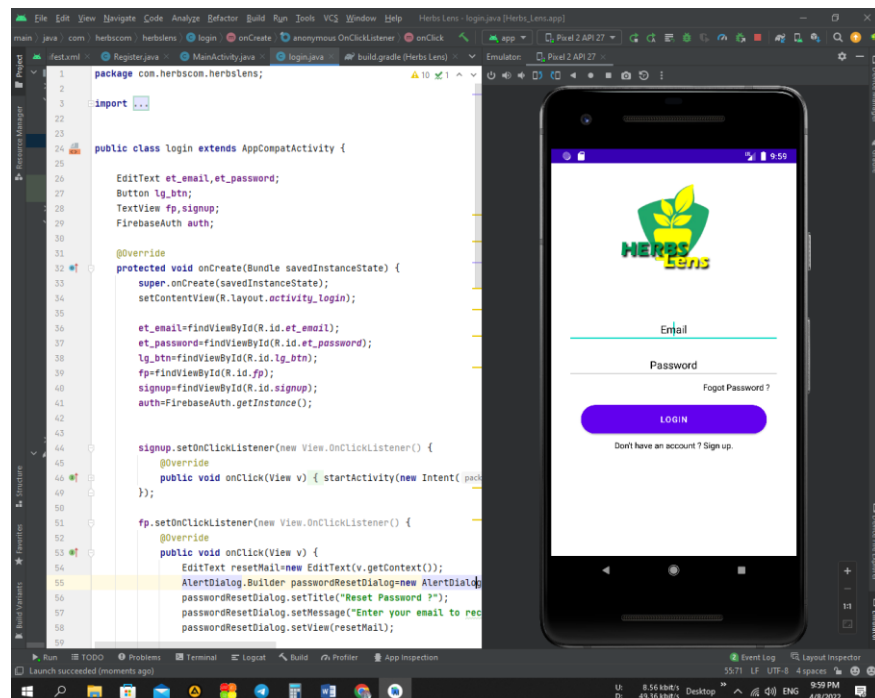
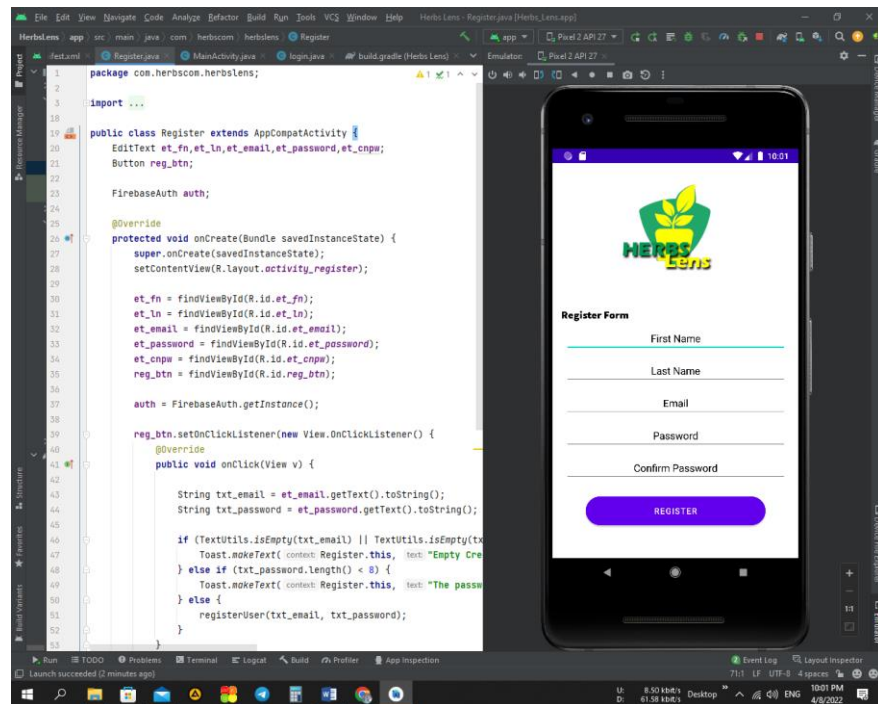
As discussed throughout the above project, Sri Lanka is a country full of various herbs. But most people do not recognize the herbs they need. As a result, some people have serious health problems. As a solution to this problem everyone can take a picture of an herb on their smartphone and upload this picture to our web system. Later, they can identify the herbs they need.

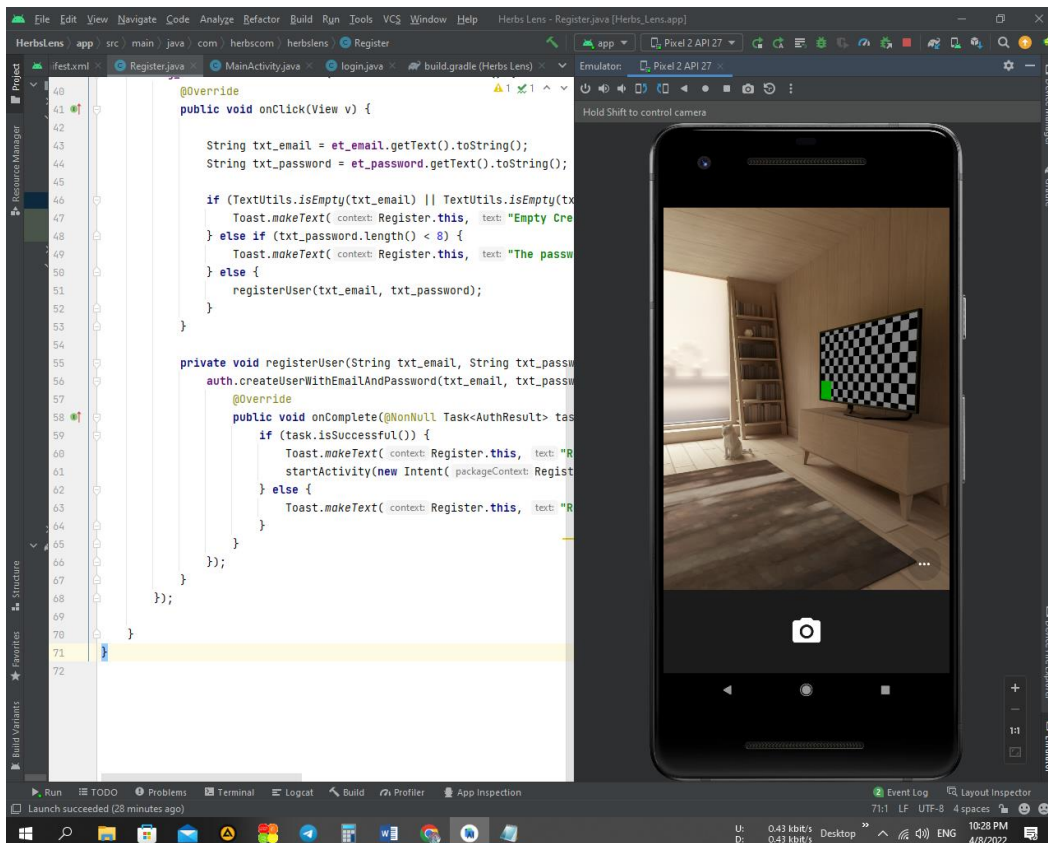
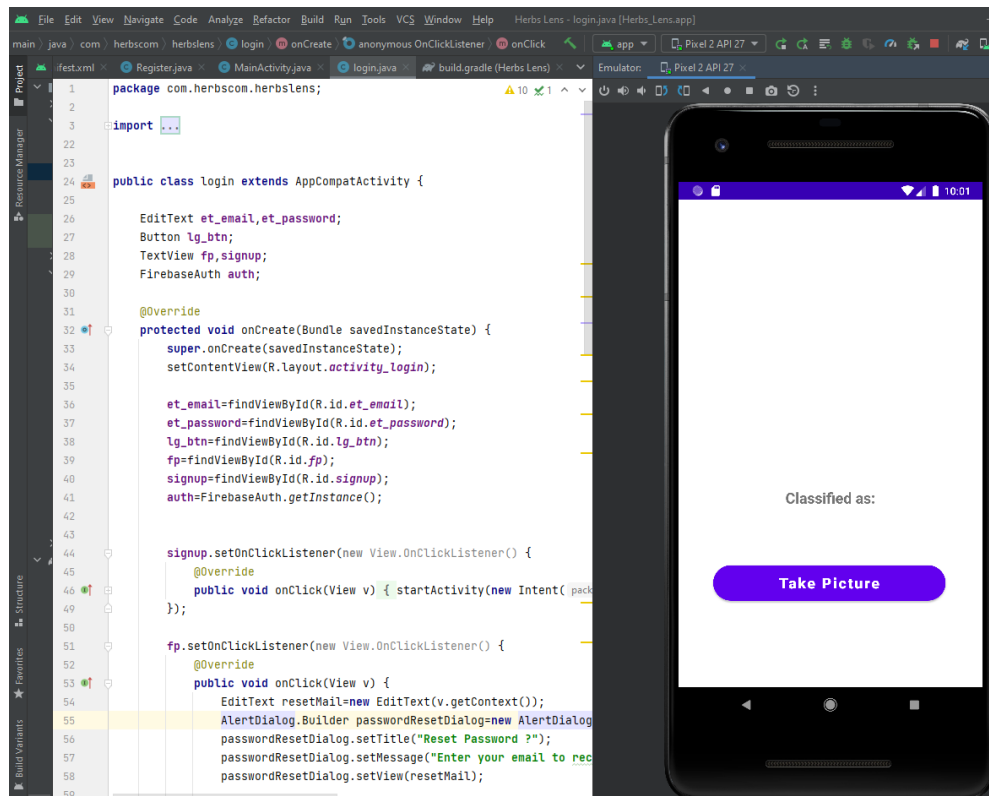
This web based system that we have come up with as a solution can be used as a very practical solution. Also, it is designed to be used by everyone, regardless of age. So we think a lot of people tend to use this.

7.3. FUTURE ENHANCEMENTS

We hope to expand the database of this web based system and create our own Picture Upload system.

It also hopes to create a mobile-based application to increase usage among more people.





7.4. CONCLUSION

It is very difficult for the new generation to identify the leaf species required for the "green porridge" that is made for everyday drinking. Herbs for various common ailments can also be found in the garden but they cannot be accurately identified.

In general, various factors have contributed to the above problem, but we conclude that the main reason for all this is the ignorance of the people.

Our traditional medicine has been lost to the new generation as even the herbs that are found daily in their backyard or in their area are being lost due to ignorance. So we decided to create a web system as a solution to this problem. Everyone can take a picture of a drug from their smartphone and upload this picture to our website. Then you can get the details of the medicine you want.

So our conclusion is that this web based system will be the solution to the long term problem.

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9. APPENDIX A: TEST CASES AND RESULTS

9.1. Text Results using Feedback forms

Feedback Form 1

Fill out the form with honesty.

1. Name :- Miss. K. A. N. B. Kannangara
2. Address :- No.8/9, Gemunu Mawatha, Wewa Rauma, Kurunegala
3. Designation :- Manager
4. Contact No :- 077 8716017
5. E-mail :- bhagvakannangara94@gmail.com

Overall Satisfactions

| Options | Very Satisfied | Satisfied | Neutral | Unsatisfied | Very unsatisfied |
|--|----------------|-----------|---------|-------------|------------------|
| System Interface | ✓ | | | | |
| Understanding System name & Content | ✓ | | | | |
| How about Login Interface, Username & Password. | | ✓ | | | |
| How about Admin Interface, Email & Password. | | ✓ | | | |
| How about image Upload user Interface, | | ✓ | | | |
| Understand all internal scope options. | ✓ | | | | |
| How about adding /updating new details interface | | ✓ | | | |
| How about search & report items interface? | ✓ | | | | |
| How about the Web site interface? | | ✓ | | | |
| How satisfied are you with this system? | ✓ | | | | |

Please note the you're think about this management system and what is the adding in the system.

I think need to think more about system security and database.

And, Need to add product list page and more products.

Overall, I very satisfied in this system.

Signature
NB. Kannangara

Figure 20 - 9.1. Feedback Form 1

Feedback Form 2

Fill out the form with honesty.

1. Name :- Mr. M. M. Senarathne
2. Address :- Kegalla road, Polgahawela, Kurunegala
3. Designation :- Software Engineer
4. Contact No :- 074 013 5770
5. E-mail :- Mudithamewan12@gmail.com

Overall Satisfaction

| Options | Very Satisfied | Satisfied | Neutral | Unsatisfied | Very unsatisfied |
|--|----------------|-----------|---------|-------------|------------------|
| System Interface | ✓ | | | | |
| Understanding System name & Content | ✓ | | | | |
| How about Login Interface, Username & Password. | | ✓ | | | |
| How about Admin Interface, Email & Password. | | ✓ | | | |
| How about Image Upload user Interface, | | ✓ | | | |
| Understand all internal scope options. | | ✓ | | | |
| How about adding /updating new details interface | ✓ | | | | |
| How about search & report plants interface? | ✓ | | | | |
| How about the Web site interface? | ✓ | | | | |
| How satisfied are you with this system? | ✓ | | | | |

Please note the you're think about this management system and what is the adding in the system.

This system is very successful, simple and easy, but if an option to "Back up" created here, the system can be further successful

Signature

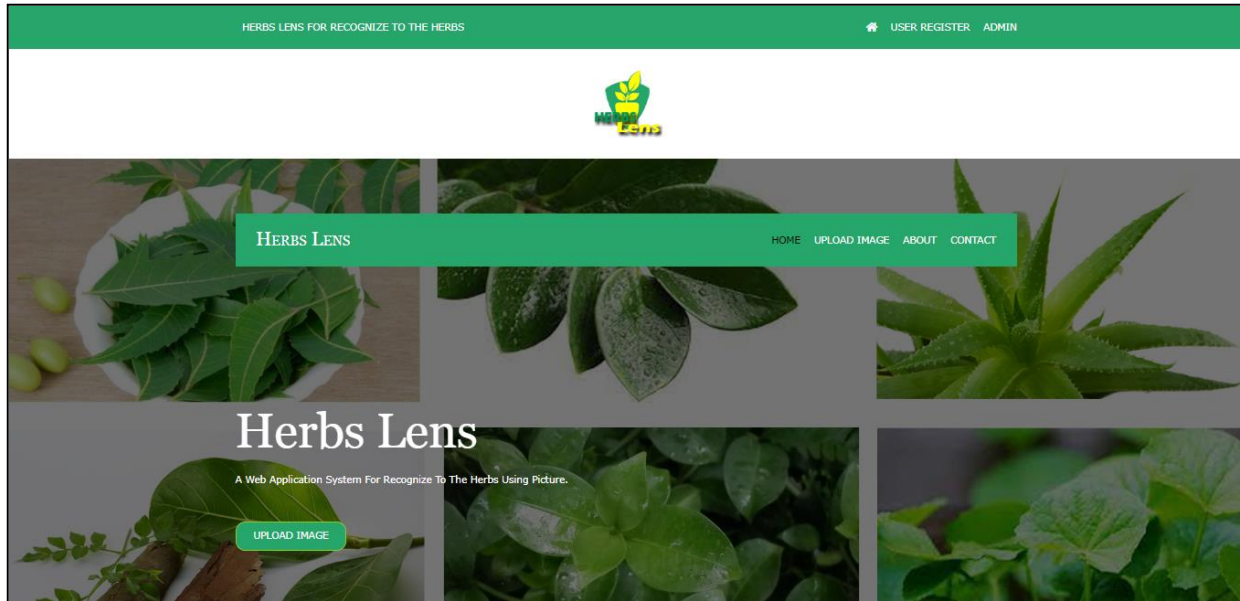
Muditha

Figure 21 - 9.1. Feedback Form 2

10. APPENDIX B: USER MANUAL

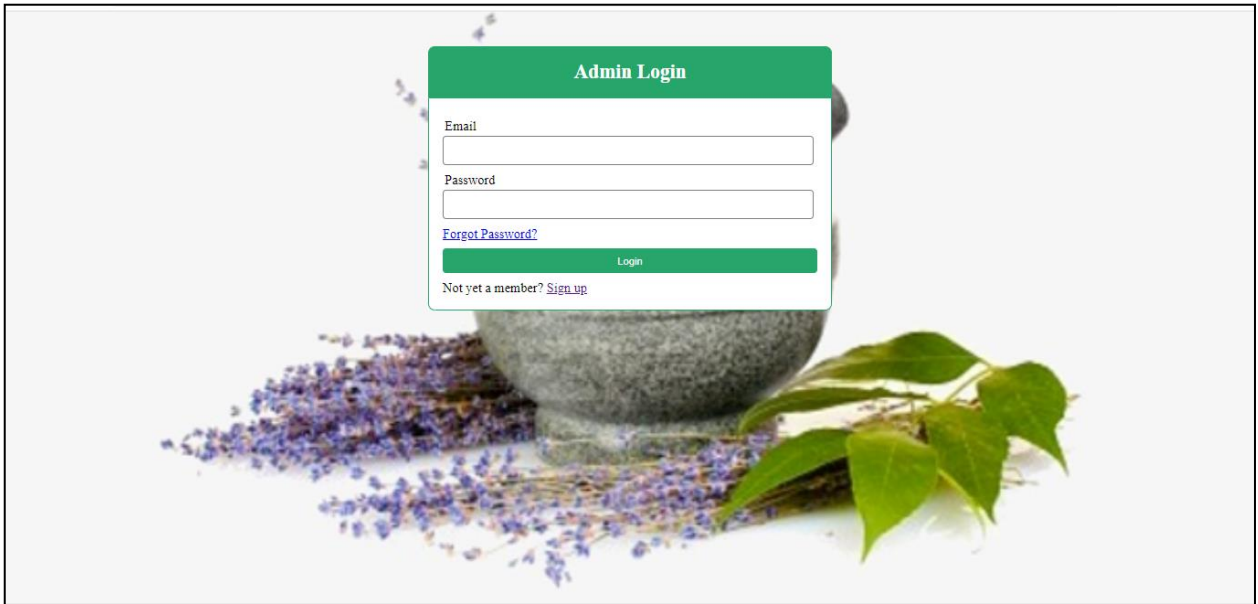
10.1. Main Interfaces in web system

10.1.1. Home Page



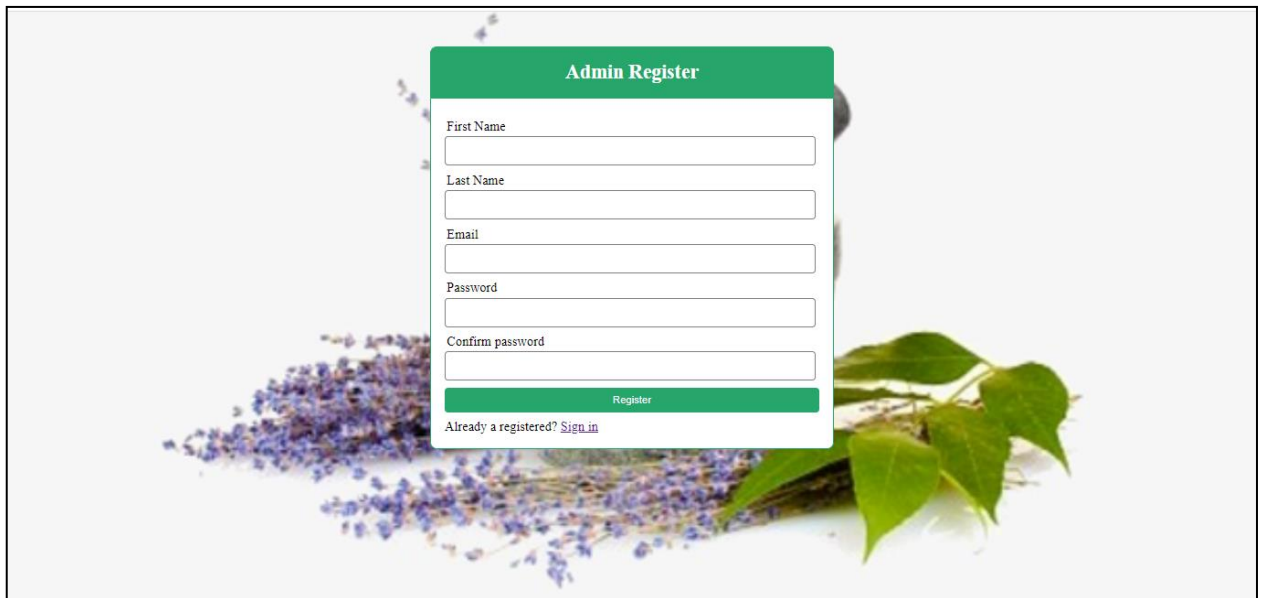
```
1 <!DOCTYPE html>
2 <html lang="en">
3 <head>
4 <title>Herbs Lens</title>
5 <meta charset="utf-8">
6 <meta name="viewport" content="width=device-width, initial-scale=1.0, maximum-scale=1.0, user-scalable=no">
7 <link href="layout/styles/style.css" rel="stylesheet" type="text/css" media="all">
8 </head>
9 <body id="top">
10
11 <div class="wrapper row0" style="background: #26A668;">
12 <div id="topbar" class="hoc clear" >
13 <div class="fl_left">
14 <ul class="nospace">
15 <li><i class="fas rgtspace-5"></i> Herbs Lens for Recognize to the Herbs</li>
16 </ul>
17 </div>
18 <div class="fl_right">
19 <ul class="nospace">
20 <li><a href="index.php" style="background: #26A668; margin-right: 20px;"><i class="fas fa-home"></i></a></li>
21 <li><a href="admin/login.php" title="register" style="background: #26A668; margin-right: 20px;"><i class="fas "></i>User Register
22 </a></li>
23 <li><a href="admin/login2.php" title="admin" style="background: #26A668;"><i class="fas "></i>Admin</a></li>
24 </ul>
25 </div>
26 </div>
27
28 <div class="wrapper row1">
29 <section id="ctdetails" class="hoc clear">
30 <ul class="nospace clear">
31 <li class="one_quarter first">
32 <div class="block clear"><a href="#"></a>
33 </li>
34 </ul>
35 </section>
36 </div>
37
38 <!-- Top Background Image Wrapper -->
39 <div class="bgded overlay padtop" style="background-image:url('images/demo/backgrounds/bg01.jpg');">
40 <header id="header" class="hoc clear" style="background: #26A668;">
41 <div id="logo" class="fl_left">
42 <h1><a href="index.php">Herbs Lens</a></h1>
43 </div>
44 <nav id="mainnav" class="fl_right">
45 <ul class="clear">
46 <li class="active"><a href="index.php">Home</a></li>
47 <li><a href="admin/login.php">Upload Image</a>
```

10.1.2. Admin Login



```
1  <?php
2      require_once('inc/config/constants.php');
3      require_once('inc/config/db.php');
4  ?>
5
6  <!DOCTYPE html>
7  <html>
8  <head>
9      <title>Admin Login</title>
10     <link href="img/favicon1.jpg" rel="icon">
11     <link rel="stylesheet" type="text/css" href="Login/styles1.css">
12 </head>
13 <body>
14     <div class="header">
15         <h2>Admin Login</h2>
16     </div>
17
18     <form method="post" action="login2.php">
19         <?php include('error.php'); ?>
20         <div class="input-group">
21             <label>Email</label>
22             <input type="text" name="email" >
23         </div>
24         <div class="input-group">
25             <label>Password</label>
26             <input type="password" name="password">
27         </div>
28         <p>
29             <a href="#">Forgot Password?</a>
30         </p>
31         <div class="input-group">
32             <button type="submit" class="btn" name="login_user">Login</button>
33         </div>
34         <p>
35             Not yet a member? <a href="register.php">Sign up</a>
36         </p>
37     </form>
38 </body>
39 </html>
```

10.1.3. Admin Register

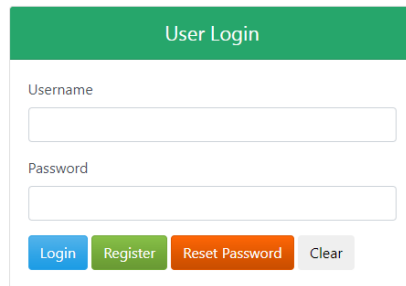


```

1  <?php
2      require_once('inc/config/constants.php');
3      require_once('inc/config/db.php');
4  ?>
5
6  <!DOCTYPE html>
7  <html>
8  <head>
9      <title>Registration</title>
10     <link href="img/favicon1.jpg" rel="icon">
11     <link rel="stylesheet" type="text/css" href="Login/styles1.css">
12 </head>
13
14 <body>
15     <div class="header">
16         <h2>Admin Register</h2>
17     </div>
18     <form method="post" action="register.php">
19         <?php include('error.php'); ?>
20         <div class="input-group">
21             <label>First Name</label>
22             <input type="text" name="fname" value=" ">
23         </div>
24         <div class="input-group">
25             <label>Last Name</label>
26             <input type="text" name="lname" value=" ">
27         </div>
28         <div class="input-group">
29             <label>Email</label>
30             <input type="email" name="email" value="">
31         </div>
32         <div class="input-group">
33             <label>Password</label>
34             <input type="password" name="password_1" id="password">
35         </div>
36         <div class="input-group">
37             <label>Confirm password</label>
38             <input type="password" name="password_2">
39         </div>
40         <div class="input-group">
41             <button type="submit" class="btn" name="reg_user">Register</button>
42         </div>
43         <p>
44             Already a registered? <a href="login2.php">Sign in</a>
45         </p>
46     </form>
47 </body>
48 </html>

```


10.1.4. User Login



A user login form with a green header bar containing the text "User Login". Below the header, there are two input fields: "Username" and "Password". At the bottom of the form, there are four buttons: "Login" (blue), "Register" (green), "Reset Password" (orange), and "Clear" (grey).

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```
98 <?php
99     require 'inc/footer.php';
100     echo '</body></html>';
101     exit();
102 }
103 }
104 }
105 <!-- Default Page Content (login form) -->
106 <div class="container">
107     <div class="row justify-content-center">
108         <div class="col-sm-12 col-md-5 col-lg-5">
109             <div class="card">
110                 <div class="card-header" style="background: #26A66B; color: #ffff; text-align: center; font-size: 22px;">
111                     User Login
112                 </div>
113                 <div class="card-body">
114                     <form action="">
115                         <div id="loginMessage"></div>
116                         <div class="form-group">
117                             <label for="loginUsername">Username</label>
118                             <input type="text" class="form-control" id="loginUsername" name="loginUsername">
119                         </div>
120                         <div class="form-group">
121                             <label for="loginPassword">Password</label>
122                             <input type="password" class="form-control" id="loginPassword" name="loginPassword">
123                         </div>
124                         <button type="button" id="login" class="btn btn-primary">Login</button>
125                         <a href="login.php?action=register" class="btn btn-success">Register</a>
126                         <a href="login.php?action=resetPassword" class="btn btn-warning">Reset Password</a>
127                         <button type="reset" class="btn">Clear</button>
128                     </form>
129                 </div>
130             </div>
131         </div>
132     </div>
133 </div>
134 <?php
135     require 'inc/footer.php';
136 }
137 </body>
138 </html>
139
```

10.1.5. User Register

User Register

Name*

Username*

Password*

Re-enter password*

Login

Register

Reset Password

Clear

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```
16 <?php
17 // (login, register, passwordReset)
18 $action = '';
19 if(isset($_GET['action'])){
20     $action = $_GET['action'];
21     if($action == 'register'){
22
23         <div class="container">
24             <div class="row justify-content-center">
25                 <div class="col-sm-12 col-md-5 col-lg-5">
26                     <div class="card">
27                         <div class="card-header" style="background: #26A66B; color: #fff; text-align: center; font-size: 22px;">
28                             User Register
29                         </div>
30                         <div class="card-body">
31                             <form action="">
32                                 <div id="registerMessage"></div>
33                                 <div class="form-group">
34                                     <label for="registerFullName">Name<span class="requiredIcon">*</span></label>
35                                     <input type="text" class="form-control" id="registerFullName" name="registerFullName">
36                                     <!-- <small id="emailHelp" class="form-text text-muted"></small> -->
37                                 </div>
38                                 <div class="form-group">
39                                     <label for="registerUsername">Username<span class="requiredIcon">*</span></label>
40                                     <input type="email" class="form-control" id="registerUsername" name="registerUsername" autocomplete="on">
41                                 </div>
42                                 <div class="form-group">
43                                     <label for="registerPassword1">Password<span class="requiredIcon">*</span></label>
44                                     <input type="password" class="form-control" id="registerPassword1" name="registerPassword1">
45                                 </div>
46                                 <div class="form-group">
47                                     <label for="registerPassword2">Re-enter password<span class="requiredIcon">*</span></label>
48                                     <input type="password" class="form-control" id="registerPassword2" name="registerPassword2">
49                                 </div>
50                                 <a href="login.php" class="btn btn-primary">Login</a>
51                                 <button type="button" id="register" class="btn btn-success">Register</button>
52                                 <a href="login.php?action=resetPassword" class="btn btn-warning">Reset Password</a>
53                                 <button type="reset" class="btn">Clear</button>
54                             </form>
55                         </div>
56                     </div>
57                 </div>
58             </div>
59         </div>
```

10.1.6. Admin Plant add/ update and delete

Add Herbal Plant

Search

Reports

Herbos Lensa

Welcome | Log Out

Herbs Details

Herbs

Upload Image

Scientific Name

Plant ID

Sinhala Name

English Name

Description

Treatment Bar

Parts used in Treatment

Add Plant

Update

Delete

Clear

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```

12 <!-- Page Content -->
13 <div class="container-fluid">
14 <div class="row">
15 <div class="col-lg-2">
16 <h1 class="my-4"></h1>
17 <div class="nav flex-column nav-pills" id="v-pills-tab" role="tablist" aria-orientation="vertical">
18 <a class="nav-link active" id="v-pills-item-tab" data-toggle="pill" href="#v-pills-item" role="tab" aria-controls="v-pills-item"
19 aria-selected="true">Add Herbal Plant</a>
20 <a class="nav-link" id="v-pills-search-tab" data-toggle="pill" href="#v-pills-search" role="tab" aria-controls="v-pills-search"
21 aria-selected="false">Search</a>
22 <a class="nav-link" id="v-pills-reports-tab" data-toggle="pill" href="#v-pills-reports" role="tab" aria-controls="v-pills-reports"
23 aria-selected="false">Reports</a>
24 </div>
25 <div class="col-lg-10">
26 <div class="tab-content" id="v-pills-tabContent">
27 <div class="tab-pane fade show active" id="v-pills-item" role="tabpanel" aria-labelledby="v-pills-item-tab">
28 <div class="card card-outline-secondary my-4">
29 <div class="card-header" style="background: #26A66B; color: #ffff;">Herbs Details</div>
30 <div class="card-body">
31 <ul class="nav nav-tabs" role="tablist">
32 <li class="nav-item">
33 <a class="nav-link active" data-toggle="tab" href="#itemDetailsTab">Herbs</a>
34 </li>
35 <li class="nav-item">
36 <a class="nav-link" data-toggle="tab" href="#itemImageTab">Upload Image</a>
37 </li>
38 </ul>
39 <!-- Tab panes for item details and image sections -->
40 <div class="tab-content">
41 <div id="itemDetailsTab" class="container-fluid tab-pane active">
42 <br>
43 <!-- Div to show the ajax message from validations/db submission -->
44 <div id="itemDetailsMessage"></div>
45 <form>
46 <div class="form-row">
47 <div class="form-group col-md-3" style="display:inline-block">
48 <label for="itemDetailsItemNumber">Scientific Name</label>
49 <input type="text" class="form-control" name="itemDetailsItemNumber" id="itemDetailsItemNumber" autocomplete="off">
50 <div id="itemDetailsItemNumberSuggestionsDiv" class="customListDivWidth"></div>
51 </div>
52 <div class="form-group col-md-3">
53 <label for="itemDetailsProductID">Plant ID</label>
54 <input class="form-control invTooltip" type="number" readonly id="itemDetailsProductID" name="itemDetailsProductID"
55 title="This will be auto-generated when you add a new item">

```

10.1.7. Admin search and report

Herbs Lens
Welcome | Log Out

Add Herbal Plant
Search
Reports

Search Herbs

Herbs

Use the grid below to search all details of plants

Show 10 entries
Search:

| Plant ID | Scientific Name | Sinhala Name | English Name | Treatment for | Parts used in Treatment | Description |
|----------|---------------------------|--------------|-----------------|---|-----------------------------|--|
| 51 | Cotyledon Laciniata | Akkapana | Cathedral Bells | Menorrhagia, Hemorrhoids Ulcers Renal Stones Abscesses Wounds Cuts Boils Ulcers Diarrhoea Vomiting Inflammation | Leaves | Perennial herb, about 1 m tall, glabrous; stems stout. Leaves bipinnatifid, very succulent, 7.5-10(-18) cm long, up to 20 cm wide; petiole-like base 2-4(-6) cm long. Inflorescence 12-25 cm long, cymose; cymes lax, many-flowered. Flowers yellow; pedicel 6-9 mm long; corolla tube 5-6 mm long. Fruit a follicle, 0.8-1 cm long. |
| 52 | Spilanthes paniculata DC. | Akmella | Toothache Plant | Toothache Oedema Tonsillitis Skin diseases Wounds Diarrhoea Snake bites Rheumatism Headache | Flowers, Roots, Whole plant | Annual herb. Stems subglabrous or very sparsely pubescent, eventually attaining about 40 cm tall. Leaves ovate, lamina 2-9 X 1-7 cm acute or obtuse at the tip, margin undulate serrate, sparsely pubescent on the lower surface. Ray flowers absent, disc flowers 2 mm long, yellow, 4-5 lobed. Achenes |

```

1 k?php
2 require_once('.../inc/config/constants.php');
3 require_once('.../inc/config/db.php');
4
5 $itemDetailsSearchSql = 'SELECT * FROM item';
6 $itemDetailsSearchStatement = $conn->prepare($itemDetailsSearchSql);
7 $itemDetailsSearchStatement->execute();
8
9 $output = '<table id="itemDetailsTable" class="table table-sm table-striped table-bordered table-hover" style="width:100%">
10 <thead>
11 <tr>
12 <th>Plant ID</th>
13 <th>Scientific Name</th>
14 <th>Sinhala Name</th>
15 <th>English Name</th>
16 <th>Treatment for</th>
17 <th>Parts used in Treatment</th>
18 <th>Description</th>
19 </tr>
20 </thead>
21 <tbody>';
22
23 // Create table rows from the selected data
24 while($row = $itemDetailsSearchStatement->fetch(PDO::FETCH_ASSOC)){
25
26     $output .= '<tr>';
27     $output .= '<td>' . $row['productID'] . '</td>';
28     $output .= '<td>' . $row['sciName'] . '</td>';
29     $output .= '<td><a href="#" class="itemDetailsHover" data-toggle="popover" id="' . $row['productID'] . '">' . $row['sinName']
30     $output .= '</a></td>';
31     $output .= '<td>' . $row['engName'] . '</td>';
32     $output .= '<td>' . $row['treFor'] . '</td>';
33     $output .= '<td>' . $row['partu'] . '</td>';
34     $output .= '<td>' . $row['description'] . '</td>';
35     $output .= '</tr>';
36 }
37 $itemDetailsSearchStatement->closeCursor();
38
39 echo $output;
40 >>

```

Herbs Lens

Welcome | Log Out

Add Herbal Plant

Search

Reports

Reports

Herbs

Use the grid below to get reports for plants

Show 10 entries

Copy CSV Excel PDF Print

Search:

| Plant ID | Scientific Name | Sinhala Name | English Name | Treatment for | Parts used in Treatment | Description |
|----------|---------------------|--------------|-----------------|--|-------------------------|---|
| 51 | Cotyledon Laciniata | Akkapana | Cathedral Bells | Menorrhagia, Hemorrhoids Ulcers Renal Stones Abscesses Wounds Cuts Boils Ulcers Diarrhoea Vomiting Inflammation | Leaves | Perennial herb, about 1 m tall, glabrous; stems stout. Leaves bipinnatifid, very succulent, 7.5-10(-18) cm long, up to 20 cm wide; petiole-like base 2-4(-6) cm long. Inflorescence 12-25 cm long, cymose; cymes lax, many-flowered. Flowers yellow; pedicel 6-9 mm |

```

1  <?php
2  require_once('../inc/config/constants.php');
3  require_once('../inc/config/db.php');
4
5  $itemDetailsSearchSql = 'SELECT * FROM item';
6  $itemDetailsSearchStatement = $conn->prepare($itemDetailsSearchSql);
7  $itemDetailsSearchStatement->execute();
8
9  $output = '<table id="itemReportsTable" class="table table-sm table-striped table-bordered table-hover" style="width:100%">
10
11      <thead>
12          <tr>
13              <th>Plant ID</th>
14              <th>Scientific Name</th>
15              <th>Sinhala Name</th>
16              <th>English Name</th>
17              <th>Treatment for</th>
18              <th>Parts used in Treatment</th>
19              <th>Description</th>
20          </tr>
21      </thead>
22      <tbody>';
23
24      // Create table rows from the selected data
25      while($row = $itemDetailsSearchStatement->fetch(PDO::FETCH_ASSOC)){
26          $output .= '<tr>';
27          $output .= '<td>' . $row['productID'] . '</td>';
28          $output .= '<td>' . $row['sciName'] . '</td>';
29          $output .= '<td>' . $row['itemName'] . '</td>';
30          $output .= '<td>' . $row['engName'] . '</td>';
31          $output .= '<td>' . $row['treatment'] . '</td>';
32          $output .= '<td>' . $row['partu'] . '</td>';
33          $output .= '<td>' . $row['description'] . '</td>';
34          $output .= '</tr>';
35      }
36
37      $itemDetailsSearchStatement->closeCursor();
38
39      echo $output;
40  >>

```

10.1.8. User Upload image

Herbs Lens

Welcome | Log Out

Image Upload

Search

Upload Taken Image

Upload

You can upload an image in plant for this section.

Upload Image

Copyright © Herbs Lens System 2022

```
16 <!-- Page Content -->
17 <div class="container-fluid">
18 <div class="row">
19 <div class="col-lg-2">
20 <h1 class="my-4"></h1>
21 <div class="nav flex-column nav-pills" id="v-pills-tab" role="tablist" aria-orientation="vertical">
22 <a class="nav-link active" id="v-pills-item-tab" data-toggle="pill" href="#v-pills-item" role="tab" aria-controls="v-pills-item"
23   aria-selected="true">Image Upload</a>
24 <a class="nav-link" id="v-pills-search-tab" data-toggle="pill" href="#v-pills-search" role="tab" aria-controls="v-pills-search"
25   aria-selected="false">Search</a>
26 </div>
27 </div>
28 <div class="col-lg-10">
29 <div class="tab-content" id="v-pills-tabContent">
30 <div class="tab-pane fade show active" id="v-pills-item" role="tabpanel" aria-labelledby="v-pills-item-tab">
31 <div class="card card-outline-secondary my-4">
32 <div class="card-header" style="background: #26A66B; color: #ffff;">Upload Taken Image</div>
33 <div class="card-body">
34 <ul class="nav nav-tabs" role="tablist">
35 <li class="nav-item">
36 <a class="nav-link active" data-toggle="tab" href="#itemImageTab">Upload</a>
37 </li>
38 </ul>
39 </div>
40 <div class="tab-content">
41 <div id="itemImageTab" class="container-fluid tab-pane active">
42 <br>
43 <div id="itemImageMessage"></div>
44 <p style="margin-bottom: 25px;">You can upload an image in plant for this section. </p>
45 <br>
46 <form name="imageForm" id="imageForm" method="post">
47 <br>
48 <button type="button" id="updateImageButton" class="btn btn-primary" style="background:#26A66B; border-color: #26A66B;
49   color: #ffff;" ><a href="https://plant.id/new_identification" style="color: #fff;">Upload Image</a></button>
50 </form>
51 </div>
52 </div>
53 </div>
54 <div class="tab-pane fade" id="v-pills-search" role="tabpanel" aria-labelledby="v-pills-search-tab">
55 <div class="card card-outline-secondary my-4">
56 <div class="card-header" style="background: #26A66B; color: #ffff;">Search Herbal Plant using Name</div>
57 <div class="card-body">
58 <ul class="nav nav-tabs" role="tablist">
59 <li class="nav-item">
60 <a class="nav-link active" data-toggle="tab" href="#itemSearchTab">Herbal Plant details</a>
```

10.1.9. User search Herbal plant

Herbs Lens

Welcome | Log Out

Image Upload

Search

Search Herbal Plant using Name

Herbal Plant details

Use the grid below to search all details of herbal plant

Show 10 entries

Search:

| Plant ID | Scientific Name | Sinhala Name | English Name | Treatment for | Parts used in Treatment | Description |
|----------|---------------------|--------------|-----------------|--|-------------------------|--|
| 51 | Cotyledon Laciniata | Akkapana | Cathedral Bells | Menorrhagia, Hemorrhoids Ulcers Renal Stones Abscesses Wounds Cuts Boils Ulcers Diarrhoea Vomiting Inflammation | Leaves | Perennial herb, about 1 m tall, glabrous; stems stout. Leaves bipinnatifid, very succulent, 7.5-10(-18) cm long, up to 20 cm wide; petiole-like base 2-4(-6) cm long. Inflorescence 12-25 cm long, cymose; cymes lax, many-flowered. Flowers yellow; pedicel 6-9 mm long; corolla tube 5-6 mm long. Fruit a follicle, 0.8-1 cm long. |

```

1 k?php
2 require_once('../inc/config/constants.php');
3 require_once('../inc/config/db.php');
4
5 $itemDetailsSearchSql = 'SELECT * FROM item';
6 $itemDetailsSearchStatement = $conn->prepare($itemDetailsSearchSql);
7 $itemDetailsSearchStatement->execute();
8
9 $output = '<table id="itemDetailsTable" class="table table-sm table-striped table-bordered table-hover" style="width:100%">
10 <thead>
11 <tr>
12 <th>Plant ID</th>
13 <th>Scientific Name</th>
14 <th>Sinhala Name</th>
15 <th>English Name</th>
16 <th>Treatment for</th>
17 <th>Parts used in Treatment</th>
18 <th>Description</th>
19 </tr>
20 </thead>
21 <tbody>';
22
23 // Create table rows from the selected data
24 while($row = $itemDetailsSearchStatement->fetch(PDO::FETCH_ASSOC)){
25
26     $output .= '<tr>';
27     $output .= '<td>' . $row['productID'] . '</td>';
28     $output .= '<td>' . $row['sciName'] . '</td>';
29     $output .= '<td><a href="#" class="itemDetailsHover" data-toggle="popover" id="' . $row['productID'] . '">' . $row['sinName'] . '</a></td>';
30     $output .= '<td>' . $row['engName'] . '</td>';
31     $output .= '<td>' . $row['treFor'] . '</td>';
32     $output .= '<td>' . $row['partu'] . '</td>';
33     $output .= '<td>' . $row['description'] . '</td>';
34     $output .= '</tr>';
35 }
36
37 $itemDetailsSearchStatement->closeCursor();
38
39 echo $output;
40 >>

```

