Online Library for Weather and Climate Data

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Abstract: *In the present age of Big Data science and concern of climate change it is very challenging and necessary to do the climate data research which has the potential deliverables because of the enormous data available in multiple formats and from multiple sources as now it is possible to get data from multiple satellite and ground based real time weather parameter observations. There is need of analysing these data to understand the climate change and associated impacts on the society. This work represents an approach for the development of an online library system for the weather and climate dat. This system will enable the users to integrate the multi-source data i.e. from different observations, satellite observations, model simulations etc. in single platform.*

Keywords: *Climate Data, Weather, Online library*

I. INTRODUCTION

The ONLINE LIBRARY FOR Weather and Climate Data is a Web Site that provides simple visualization and data export of weather and climatological data archived at various open source domain. This web site is a Free resource generator for those who are involved in Environmental research or students of environmental science .The Web site provides such an interface for The user which is user Friendly and easy to access .The Web site will allow the Administrator to Upload new files Research Papers .which can be downloaded by any user of the website. It will also provide online continuous News feeds of the topics related to Environmental issues .There are four sections in the website which will display Analyses of current conditions, weather forecasts, Oceanography, Maximum potential storm intensity. The first part is Analyses of current conditions, which will display this page contains links to complete analysis images for selected regions of Indian subcontinent plus 1-hr and 6-hr accumulated precipitation over India. The next part is weather forecasts, which will show recent forecasts from the different Numerical Weather Prediction Models. This page contains links to complete forecast images for selected regions of Indian subcontinent plus simplified precipitation and surface temperature forecasts for Indian regions. The third part is oceanography, which will display the data related to oceanographic research, final part is , Maximum potential storm intensity which will display the potential minimum central pressure and potential maximum winds for the Atlantic, Pacific,

and Indian Oceans. Other than this the research section will contain the research papers that are uploaded by the scientist, who are also the admin of the website. The contact us section will help you to contact with the admin for any specific question.

1) Aim

This present work intends to provide a well-established web-based Platform for Environment Students and Researchers. This documents a networking system scope, functionalities, requirements and feasibility. Project aims to develop a website which provides a Communication between students and scientists in a closed network where they can be easily connected and the whole research papers and different models can come under one roof virtually and available easily as needed from a single website.

2) Objective

The objective of the project is to provide a common interface for the Students those who are involved in Environmental studies and the scientist hence providing a reliable and efficient inter communication between them.

• To have attractive and Secure Login page to access website for the admin.
• To provide an interface where all environments related study and current material will be found.
• To bring together students and scientists together for better understanding of the
     Environment system.
• To upload and download documents.
• Get easy awareness of current weather condition.

3) Scope

The website is an online community designed to bring students and scientists together so that the students get a real life experience of environment science connect with the people who are working in the field for more knowledge and experience. The can help you maintain a close encounters with the real life scenario with real time examples and send messages for further clarification . This website also provides the features that will help the scientists of C-MMAC to put all there research work in a single place and close to the students. The main idea behind this is to share the necessary research work with the students and

scientist of other organization who are related to the same field which can be read by all the users

Using the website. This website enhances the technology news feed. The main purpose behind this site is to maintain each department and its groups together under one roof virtually.

II. THE NEED AND APPROACH

Weather and climatic information plays a major role before and during the cropping season and if provided in advance can be helpful in inspiring the farmer to organize and activate their own resources in order to reap the benefits.

It becomes more and more important to supply climatological information blended with seasonal climate forecasts before the start of the cropping season in order to adapt the agricultural system to increased weather variability. Subsequent to this, short and medium range weather forecast based Agro-meteorological advisories become vital to stabilize their yields through management of agro-climatic resources as well as other inputs such as irrigation, fertilizer and pesticides.

Currently there are web sites of meteorological department and oceanography department but it is a very tedious job for a researcher to search data from this web sites and available research papers.

Draw backs
The draw backs of the current web interfaces are
•	Not user friendly interface.
•	Very poor interface design, it is difficult to understand where to find what.
•	Difficult to navigate through the Web site.
•	No such system is existing where one can find every possible data he wants.
•	No such system is existing for the outer world to know about the environmental research.

PROPOSED SYSTEM: The proposed system are enlisted below

•	Secured because of close network

•	News feed of technology all over the world being updated in site

•	Easy contact to admin.

•	All department Research stuffs are easily available.

•	No Duplication of profile

•	User can upload Files

•	Can reset their account settings

4)	FEASIBILITY STUDY
The development of a computer-based system is more likely to be plagued by the scarcity of the resources bad difficulty delivered data. A feasibility study is not warranted system in which economic justification is obvious, technical risk, low, few legal problems are expected, and no reasonable alternative exists.

Three essential consideration are involve in the feasibility analysis
•	Technical feasibility
•	Operational feasibility
•	Financial feasibility

II.1 TECHNICAL FEASIBILITY

Technical feasibility centers on existing computer system and to what extent it supported the proposed. The assessment is based on an outline design of system requirements in term of Input, Output, Fields Programs and Procedure. This can be qualified in terms of volumes of data, trends, frequency of updating, etc.in order to give an introduction to the technical system.

The project development needed the manpower with the following skills:
•	Windows XP
•	Knowledge of Java Script, Html, Php.
•	Basic knowledge of XAMPP, SQL

II.2 OPERATIONAL FEASIBILITY

People are inherently resistant to change. Computers have been known to facility changes. An estimate should be made to know the reaction of the user is likely to have towards the new system.

II.3 FINANCIAL FEASIBILITY

This involves question such as whether the organization can afford to build the system, whether its benefits should substantially exceed its cost, and whether the project has higher priority and profits other than projects that might use the send resources.

This also includes whether the projects is in the condition to fulfill all the eligibility criteria and the responsibilty of both sides in case there are two parties involved in performing any projects.

Since this system is ready to use in the organization, this system is operationally feasible the system is technically, operationally and functionally feasible the system is judge feasible. Viewing the collected information, recommendation, justification and conclusions are made on the developed system.

III.HARDWARE AND SOFTWARE SPECIFICATION

1)   HARDWARE SPECIFICATION

PROCESSOR : INTEL PENTIUM 4 OR ABOVE

SPEED   : 1.00 GHZ

RAM   : 256 MB OR ABOVE

HDD   : 20GB

2)   SOFTWARE SPECIFICATION

OPERATING SYSTEM: WINDOWS XP or Higher

TOOLS   : XAMPP, PhpMyAdmin

FRONT END   : HTML, CSS, JAVASCRIPT, PHP

DATABASE   : PhpMyAdmin (MYSQL)

WEB SERVICE   : XAMPP (TOMCAT)

WEB BROWSER   : Apple Safari, GOOGLE CHROME

SOFTWARE REQUIREMENT SPECIFICATION

Software requirement specification bridges the gap between the client or the user and the system developer. SRS is the official statement of what is required from the system developers; it includes both user requirements and detailed specification of system requirements.

Primarily, the scope pertains to the Websites features for making usability, maintainability, flexibility, reliability effective and let the users upload download files and communicate with each other. It focuses on the company, the stakeholders and applications, which allow for online distribution of resources effective.

Only the users who have this application can work on this application and they are very high-end users because they deal with the cash of the organization all the time. Users are students and admin.

Students:
 Students are the one who can go through the website casually browse and can download research materials go to the different sections for information about the current environmental condition which is up to date and can search for old documents that are uploaded by the admin.

The students can also go for integrated map application which shows updated satellite images of India straight from the satellite. The image is displayed as it is updated to the server.

Admin:
Admin are the one who can go through the website upload files, maintain the content of the website, upload research materials.

FUNCTIONAL REQUIREMENTS

The following are the functional requirements of -site:
•   Allowing the members to download files
•   Allowing members to send messages through contact us part.

•   Members can upload files which can be easily accessible.

•   Easy contact to admin and they can subscribe themselves to the site.

•   Integrated map application which shows satellite images of current weather.

•   Easy navigation through the website.

•   Potential storm prediction application in Indian subcontinent.

NON-FUNCTIONAL REQUIREMENTS
The following are the non-functional requirements of -site:

•   Availability: the site can be open at any time 24 x 7. This application will be available in different geographical locations

•   Portability: the website can be run from several system at the same time.
•   Efficiency: This application fetches the data as the user wants.

•   Reliability: it is reliable and helps to connect the members securely.

•   Maintainability: the maintenance is very easy and changes can be done very easily.

IV.SYSTEM DESIGN

When the requirements document for the software to be developed is available the design activity begins. The main aim of design process is to produce a model or representation of the system, which can be used later to bind the system. The produced model is called design of the system. A system design is a top down approach to minimize complexity and make a problem manageable by subdivided it into smaller segments.

The most changing phase of the system development of life cycle is system design. It refers to the technical specification that will be applied in implementing the candidate system. The design phase is a translation from user oriented document to document oriented to programmers. The potential objects are thoroughly analyzed. Class hierarchies are to check whether the system is behaving the way it has to. There after the classes are individually tested and subsequently they are integrated from the overall system. This level focuses on deciding which modules are needed for system the specifications for those modules and how these modules are that interconnected.

Data Flow Diagram:

The detailed Data flow diagrams i.e 0 level and top level DFD are presented schematically in Fig 1 and 2. Also the use case diagram for user and admn. are presented in Fig 3 and 4 respectively.
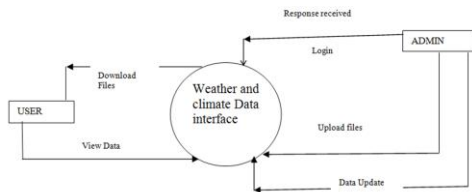

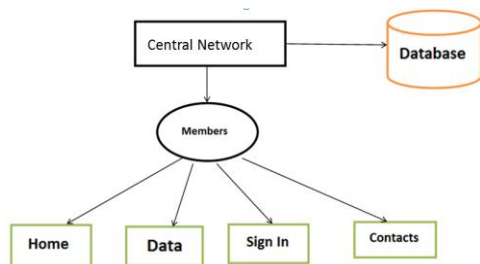Fig. 1 0 level DFD of the proposed system

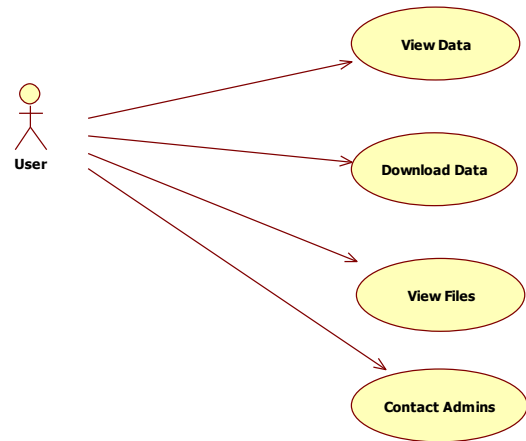Fig. 2 Top level DFD of the proposed system

Use Case Diagram

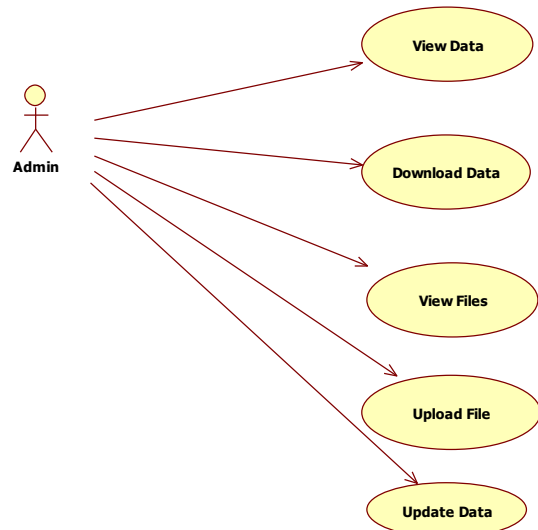Fig. 3 Use case diagram for the user

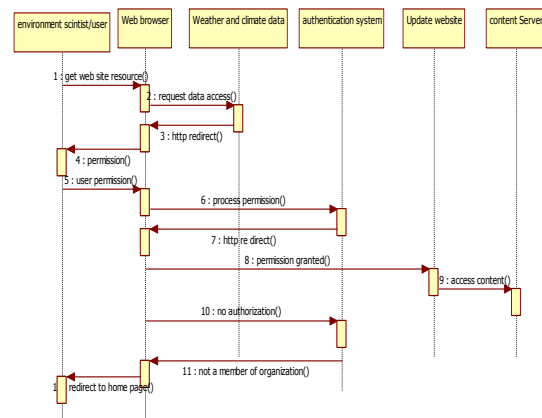Fig. 4 Use case diagram for the Admn
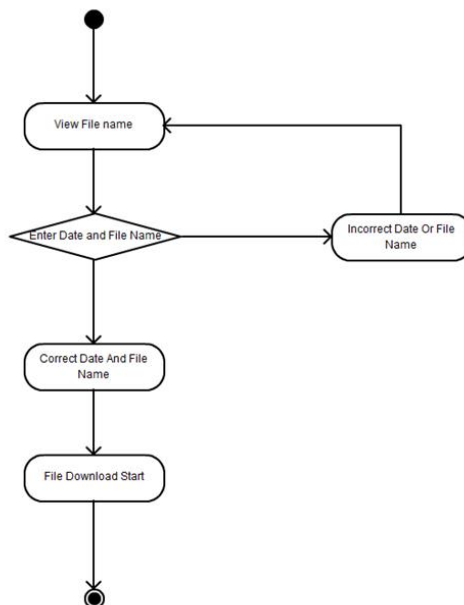

Fig. 5 Sequence diagram of the system

Fig. 6 Activity diagram showing file download module

V. CONCLUSIONS

The present work leads a Web interface for up-to-date weather and climate Information which is a single interface where all the weather and climate data are available for everyone. Users are freely able to visit the up dated weather and climate report. This interface can be integrated with real time remote sensing data, reanalysis data and the numerical model simulation with GIS in future for the better representation and usage of the weather and climate data.

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