Digital Technologies/ MIS for Monitoring Water Quality Management in Water Supply Network at District Level

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Abstract - **This Digital technologies/ MIS for monitoring water quality management in water supply network at district level is a Web based application. It includes all the features and functions needed to efficiently manage a Water process. The project entitled "Digital technologies/ mis for monitoring water quality management in water supply network at district level" the main aim of the project is to provide Add hydrostatic details, add hydrostatic method details, Add the District Details. In this project following modules are used. Administrator and User. In this project we are going to provide the administration capability's like Add hydrostatic details, view reviews which helps the water level, water capacity to control the process of need hydrostatic for each user for the purpose of story and distributed Water level process. In User Module View the view hydrostatic details, view hydrostatic method details, Post reviews.**

Index Terms – **Digital Technologies, Web Based Application, Hydrostatic Methods.**

I. INTRODUCTION

A Drinking Water Quality Management Plan documents a risk assessment and management process and provides a basis on which to maintain (and improve) the safety of the supply of drinking water. These guidance notes and templates have been developed to provide a structure that Drinking Water Service Providers (DWSP) may use to prepare a Drinking Water Quality Management Plan (Plan) to comply with the Water Supply (Safety and Reliability) Act 2008. This document must be read in conjunction with the Guideline on the Preparation of Drinking Water Quality Management Plans, September 2010 (the Guideline) to ensure that all parts of each criterion have been addressed. This document provides suggestions on how information may be presented in a plan and examples of the level of detail that may be required to demonstrate to the regulator that the criteria have been addressed. However, it does not replace the guideline and DWSPs must ensure their plan addresses all criteria detailed in the guidelines. This Water Quality Management Plan (WQMP) is a guidance document that will help you to design your project in compliance with Santa Ana Regional Water Quality Control Board (Santa Ana Regional Board) requirements for Priority Development Projects. These requirements are specified in the National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) permit issued to the Riverside County Flood Control and Water Conservation District, County of Riverside, and other Cities within the Santa Ana River watershed in the 2010 MS4 Permit. The area covered by this MS4 Permit is referred to as the Santa Ana Region (SAR). The requirements are complex and technical. Because every project is different, you should begin, if possible, by scheduling a preapplication meeting with the applicable Co-Permitted staff.

II. PROPOSED MODULES

Authentication:

Authentication module contains all the information about the authenticated Person. Administrator without his username and password can't enter into the login if he is only the authenticated Person then he can enter to his login.

Authentication is the process of verifying the identity of a Person by obtaining some sort of credentials and using those credentials to verify the Users identity. If the credentials are valid, the authorization process starts. Authentication process always proceeds to Authorization process.

Add hydrostatic:

In Add hydrostatic details and methods module used to add new hydrostatic like river, falls, pond and Lake details and his purification method details. It contains information about id, Type, District, Name, Location, Size, Quality, Purify, Supply Area, No_of_User, Photo. The ID will be generating automatically. The hydrostatic details store into the database. Administrator only has the permission to Add hydrostatic **Details.**

Search District Wise:

The User can Search the hydrostatic information of their choice. Search hydrostatic module is give input as the city and get output like the id, Type, District, Name, Location, Size, Quality, Purify, Supply Area, No_of_User, Photo of the hydrostatic. Those details can view by the User in the module.

Search hydrostatic Wise:

The User can Search the hydrostatic information of their choice. Search hydrostatic module is give input as the hydrostatic Name and get output like the id, Type, District, Name, Location, Size, Quality, Purify, Supply Area, No_of_User, Photo of the hydrostatic. Those details can view by the User in the module.

Post Review:

In post Review Module used to People give his suggestion or review about hydrostatic purification method. The Post Review Modules contain the details of the Reviews like Review id, HID, Type, District, Name, Review, User Name, Phone No. The Review ID will be generating automatically. The Review details store into the database. People or customer only has the permission to Add Review Details.

View Review:

Every People will Give his reviews in this website then Administrator view and access the reviews. The review information will be send to administrator. The administrator view the review details like Review id, HID, Type, District, Name, Review, User Name, Phone No.

SOFTWARE DESCRIPTION

FRONT END: PHP

Generate dynamic web pages. PHP can display different content to different user or display different content at different times of the day Process the contents of HTML forms. We can use an PHP to retrieve and respond to the data entered into an HTML form. Can create database-driven web pages. An PHP can insert new data or retrieve existing data from a database such a MySQL. The Web server accepts the request and sends the HTML to the Client browser that requests it. Web browser and web server communicate through a common protocol (HTTP). The examples for web server are XAMPP(any of four different operating systems, Apache, MySQL, Php, Perl), WAMP (Windows, Apache, MySQL, Php), MAMP(Macintosh, Apache, MySQL, PHP).

PHP is a standard HTML file that is extended with additional features. Like a standard HTML file, PHP contains HTML tag that can be interpreted and displayed by a web browser. Anything we could normally place in an HTML file Java applets, Blinking text, server side scripts .we can place in PHP. However, PHP has three important features that make it unique. PHP contains server side scripts. PHP provides several built-in objects.

BACK END: MYSQL

MYSQL is a relational database system. If you can believe many diehard MYSQL fans, MYSQL is faster, more reliable, and cheaper -- or, simply put, better -- than any other database system (including commercial systems such as Oracle and DB2). Many MYSQL opponents continue to challenge this viewpoint, going even so far as to assert that MYSQL is not even a relational database system. We can safely say that there is a large bandwidth of opinion.

• The fact is that there is an ever increasing number of MYSQL users, and the overwhelming majority of them are quite satisfied with MYSQL. Thus for these users we may say that MYSQL is good enough.

• It is also the fact, however, that MYSQL still lacks a number of features that are taken for granted with other database systems. If you require such features, then MYSQL is (at least for the present) not the database system for you. MYSQL is not a panacea.

On the z/TPF system, the MySQL server uses the directory tree setup when you enter ZMSQL BOOTSTRAP PATH-/pathname, where /pathname specifies the base directory in

which MySQL is installed. This means that all MySQL files can be found in this directory (/pathname). When you are configuring MySQL, ensure that the MySQL files reside in a file system that is thread-safe, such as a pool file system (PFS), memory file system (MFS), or fixed file system (FFS). MySQL uses the following directories by default, assuming /pathname is specified for the PATH parameter.

III. TESTING METHODOLOGIES

It is the process of exercising software with the intent of finding and ultimately correcting errors. This fundamental philosophy does not change for web applications, because web-based system and applications reside on network and inter-operate with many different operating systems, browsers, hardware platforms and communication protocols. Thus searching for errors is significant challenge for web applications.

Testing issues:

1. Client GUI should be considered.
2. Target environment and platform considerations
3. Distributed database considerations
4. Distributed processing consideration

Testing and Methodologies

System testing is the state of implementation, which is aimed at ensuring that the system works accurately and efficiently as expect before live operation, commences. It certifies that the whole set of programs hang together System testing requires a test plan, that consists of several key activities and steps for run program, string, system and user acceptance testing. The implementation of newly design package is important in adopting a successful new system

Testing is important stage in software development. System test is implementation should be a confirmation that all is correct and an opportunity to show the users that the system works as they expected It accounts the largest percentage of technical effort in software development process.

Testing phase is the development phase that validates the code against the functional specifications. Testing is a vital to the achievement of the system goals. The objective of testing is to discover errors. To fulfill this objective a series of test step such as the unit test, integration test, validation and system test where planned and executed.

Unit testing

Here each program is tested individually so any error apply unit is debugged. The sample data are given for the unit testing. The unit test results are recorded for further references. During unit testing the functions of the program unit validation and the limitations are tested.

Unit testing is testing changes made in a existing or new program this test is carried out during the programming and each module is found to be working satisfactorily. For example in the registration form after entering all the fields we click the submit button. When submit button is clicked ,all the data in form are validated. Only after validation entries will be added to the database.

Validation Testing

Software validation is achieved through a serious of testes that demonstrate conformity with requirements. Thus the proposed system under consideration has been tested by validation & found to be working satisfactory.

Output Testing

Asking the user about the format required by them tests the output generated by the system under consideration .It can be done in two ways, One on screen and other on printer format. The output format on the screen is found to be correct as the format designed n system test.

System Testing

In the system testing the whole system is tested for interface between each modules and program units are tested and recorded. This testing is done with sample data . The securities, communication between interfaces are tested.

System testing is actually a series of different tests whose primary purpose is to fully exercise the computer based system although each test has a different purpose all work to verify that all system elements properly integrated and perform allocate function. It involves two kinds of activities namely

1. Integrated testing
2. Acceptance testing

Integrated testing

Integrated testing is a systematic technique for constructing tests to uncover errors associated with interface.

Objective is to take unit tested modules and build a program structure that has been dictated by design.

Acceptance testing

Acceptance testing involves planning an execution of a functional test, performance test and stress test to verify that the implemented system satisfies the requirement. The acceptance testing is the final stage of the user the various possibilities of the data are entered and the results are tested.

Validation testing

Software validation is achieved through a series of test that demonstrates the conformity and requirements. Thus the proposed system under consideration has to be tested by validation and found to be working satisfactorily. For example in customer enters phone number field should contain number otherwise it produces an error message similarly in all the forms the fields are validated.

Testing results

All the tests should be traceable to customer requirements the focus of testing will shift progressively from programs Exhaustive testing is not possible To be more effective testing should be which has probability of finding errors

The following are the attributes of good test

1. A good test has a probability of finding a errors

2. A good test should be "best of breeds"

3. A good test to neither simple nor too complex

System Implementation

System Implementation is the stage in the project where the theoretical design is turned into a working system. The most crucial stage is achieving a successful new system and giving a user confidence in that the new system will work efficiently and effectively in the implementation stage.

The stage consist of

1. Testing a developed program with sample data

2. Detection and correction of error

3. Creating whether the system meets a user requirements

4. Making necessary changes as desired by users.

5. Training user personal

The implementation phase is less creative than system design. A system design may be dropped at any time prior to implementation, although it becomes more difficult when it goes to the design phase. The final report of the implementation phase includes procedural flowcharts, record layouts, and a workable plan for implementing the candidate system design into a operational design.PHP and MY SQL has offer very efficient yet a simple implementation technique for development of the project.
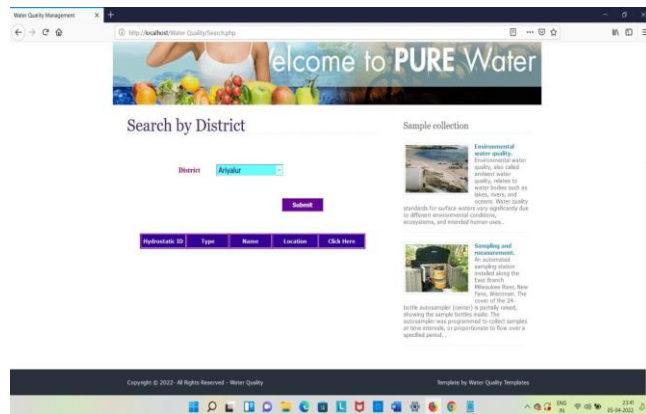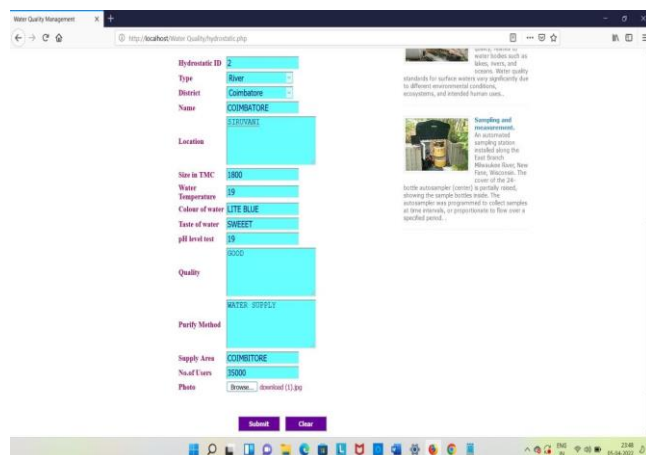
IV. EXPERIMENTAL RESULTS

Home Page:

Admin Login:
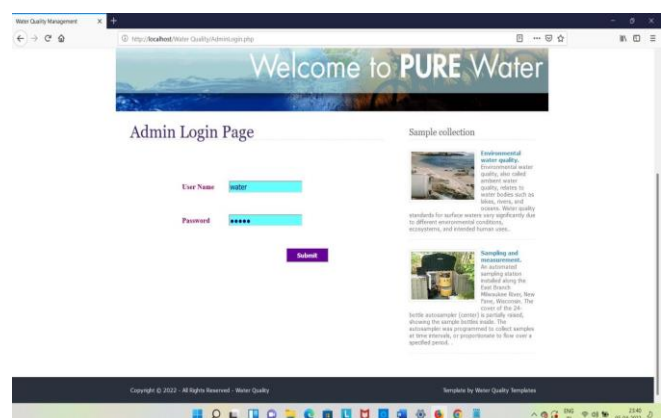
Hydrostatic Searching by Area:

Hydrostatic Searching by Area:

V. CONCLUSION

The "Water Quality" has been developed to satisfy all proposed requirements. The process is maintained more simple and easy. The system is highly scalable and user friendly. Almost all the system objectives have been met. The system has been tested under all criteria. The system minimizes the problem arising in the existing manual system and it eliminates the human errors to zero level. The design of the database is flexible ensuring that the system can be implemented. It is implemented and gone through all validation. All phases of development were conceived using methodologies. User with little training can get the required report. The software executes successfully by fulfilling the objectives of the project. Further extensions to this system can be made required with minor modifications.

FUTURE ENHANCEMENT

Manage stock more efficiently e.g. by fencing off streams and waterways to reduce direct water contamination. take care when applying fertilisers and pesticides. be aware of water table depth and avoid overusing water in dry seasons. retire land from unsuitable uses or change land uses (e.g. pasture to forest). Water demand is projected to grow by 55 percent by 2050 (including a 400-percent rise in manufacturing water demand). By 2050, 1 in 5 developing countries will face water shortages (UN's Food and Agriculture Organization). The area covered by this MS4 Permit is referred to as the Santa Ana Region (SAR). The requirements are complex and technical. Because every project is different, you should begin, if possible, by scheduling a preapplication meeting with the applicable Co-Permitted staff.

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