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Implementation of Water Quality Management Platform for Aquaculture Based on Big Data

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ABSTRACT

In the implementation of water quality management platform for aquaculture based on big data project, In order to ensure the quality and quantity of aquaculture, aquaculture farmers need to grasp the water quality in time. However, most farmers have to collect water quality data manually at present, and cannot store and reuse that information rapidly. This project aims to use spring boot platform of acquisition automation and visualization, which realizes the data analysis and display of heterogeneous water quality prediction and real-time warning. Meanwhile, it realizes the management of robots, users and breeding experts. The application of these platform better social benefits to aquaculture farmers.

Keywords: Aquaculture, Big Data, Aquaculture Farmers, Visualization.

I. INTRODUCTION

Disease and epizootic control, brood stock improvement and domestication, the development of appropriate diets and feeding mechanisms, hatchery and grow out technology, and water quality management will all be challenges for aquaculture during the next decade. All of these are current key biotechnological and other technical efforts. The scientific study of aquatic organisms is known as aquaculture informatics.

The application of information technology to biological ideas in order to increase the productivity and economic viability of its numerous industrial sectors. The amount of digitally accessible aquaculture information is growing exponentially, and appropriate steps must be made to stimulate collaboration and save expenses. These Aquaculture information resources hinder information exchange because they are sometimes located in private apps and employ diverse data architectures. In addition, some information system designers are not aware of existing design methodologies, data description standards, or freely available tools or applications. The goal of this article is to gather these new implementers into a central hub where they may support existing systems while also contributing to the creation of new ones.

II. RELATED WORKS

Pillay, The role of aquaculture in fishery development and management, journal fisheries research board of Canada: Although there have been various patterns of aquaculture development through history, current emphasis is mostly focused on the building of viable industries. The focus in the world's major aquaculture areas remains on the growth of species that are affordable to the majority of consumers. Aquaculture is also used to boost natural stock species by artificial recruitment and translocation, as well as to produce bait, sport, or ornamental fish. Aquaculture methods include fish and shrimp culture in ponds, tanks, cages, enclosures, raceways, and recirculating systems, as well as "bottom" and "hanging" mollusk culture. World aquaculture production (excluding bait, sport, and decorative fish and production through open water stocking) exceeds 5 million tonnes. This is vital in many countries food and nutrition systems, and it is especially important in integrated rural development. Aquaculture can help poor countries meet their demand for animal proteins while also increasing the supply of luxury foods. It can also function as an effective link between low-quality fishery products and high quality fish. The employment potential is huge, and well managed installations provide good returns on investment. Aquaculture, in addition to relieving strain on overexploited stocks, allows for the development of resources within national borders. In certain locations, there is significant potential for stock enhancement by artificial recruitment and transplantation. The deployment of proper corrective procedures can eliminate any negative impacts of aqua cultural growth. Although no global survey has been conducted, it is well recognised that large expanses of land are readily available for aquaculture in many developing countries. Approximately 22 million acres have been identified as prospective locations for fish production in 11 Asian nations alone. Other methods of aquaculture have far more sites. Production from aquaculture is expected to increase up to tenfold by the year 2000. Some of the prevailing myths regarding aquaculture have hampered the industries growth. Existing knowledge is not being effectively utilised due to a lack of adequate planning, money, and a paucity of trained staff. Aside from improved research facilities to fill knowledge gaps, there is an urgent need to design appropriate development strategies within the context of national fishery development plans in order to meet production targets in various nations.

An intelligent auction scheme for smart grid market using a hybrid immune algorithm: Traditional electric power systems were distinguished by a small number of big power plants powered by fossil, hydro, or nuclear fuels, high-voltage transmission systems, and medium-low-voltage distribution systems. In terms of how energy moves from production sites to final users, this system is essentially unidirectional and passive. Smart grids (SGs) constitute a new paradigm in this context.

Recognizing facial expressions in image sequences using local parameterized models of image motion: The use of local parameterized image motion models for recovering and recognising the non-rigid and articulated motion of human faces is investigated in this study. For estimating motion in rigid settings, parametric flow models (such as affine) are widely used. We find that such models not only accurately depict non-rigid face motions in local regions of space and time, but also provide a simple description of the motion in terms of a small number of parameters. These parameters are intuitively associated to the motion of facial features during facial emotions, and we demonstrate how, in the presence of significant head motion, expressions such as anger, happiness, surprise, fear, contempt, and sadness can be detected from the local parametric motions. In lengthy laboratory studies involving 40 people, as well as in television and movie sequences, the motion tracking and expression recognition approach functioned with excellent accuracy.

Fully automatic facial action unit detection and temporal analysis: In this work we report on the progress of building a system that enables fully automated fast and robust facial expression recognition from face video. We analyze subtle changes in facial expression by recognizing facial muscle action units (AUs) and analyzing their temporal behavior. By detecting AUs from face video we enable the analysis of various facial communicative signals including facial expressions of emotion, attitude and mood. For input video picturing facial expressions we detect per frame whether any of 15 different AUs is activated, whether that facial action is in the onset, apex, or offset phase, and what the total duration of the activation in question is. We base this process upon a set of spatiotemporal features calculated from tracking data for 20 facial fiducially points. To detect these 20 points of interest in the first frame of an input face video, we utilize a fully automatic, facial point localization method that uses individual feature Gentle Boost templates built from Gabor wavelet features. Then, we exploit a particle filtering scheme that uses factorized likelihoods and a novel observation model that combines a rigid and a morphological model to track the facial points. The AUs displayed in the input video and their temporal segments are recognized finally by Support Vector Machines trained on a subset of most informative spatiotemporal features selected by AdaBoost. For CohnKanade and MMI databases, the proposed system classifies 15 AUs occurring alone or in combination with other AUs with a mean agreement rate of 90.2% with human FACS coders

Pose-Invariant facial expression recognition using variable intensity templates: In this research, we offer a method for recognising facial expressions from monocular video sequences that is pose-invariant. The advantage of our method is that, unlike existing methods, it uses a relatively simple model, known as the variable-intensity template, to describe distinct facial emotions, allowing us to construct a model for each individual with minimal time and effort. The intensity of many locations designated in the area of face parts varies for different facial expressions, according to variable-intensity templates. Our method estimates face poses and expressions simultaneously by including this model into the framework of a particle filter. Experiments show how effective our method is. On a 40-point scale, a recognition rate of more than 90% was attained for horizontal facial orientations.

III. METHODS AND MATERIAL

Proposed system:

We propose, to implement the quality of water management platform for aquaculture based on big data project, In order to ensure the quality and quantity of aquaculture, aquaculture farmers need to grasp the water quality in time. So this application of these platform better social benefits to aquaculture farmers.

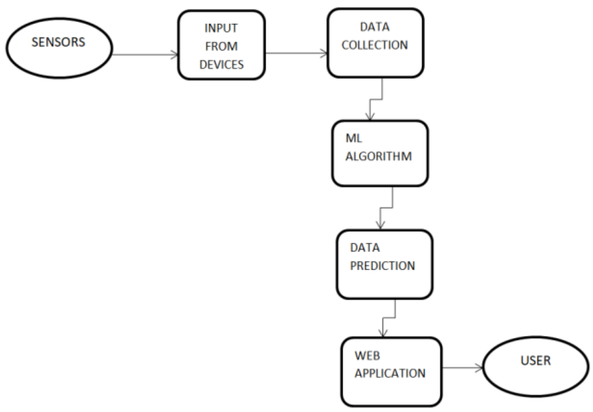


Figure 1: Block diagram of proposed method

IV. IMPLEMENTATION

The project has implemented by the process as mentioned below.

COMMAND PROMPT:

Command prompt will setup the hadoop environment when user will run the command. It will run all the commands what user wants to run. It will take the data set into the hadoop environment. It will execute the project when the user calls to particular dataset with jar file.

USER:

User can setup the hadoop environment and upload the data set into hadoop environment. User can create the jar file to run the project. User can run the command to get output. Then he will get the output like the values of water quality.

STEPS FOR EXECUTING THE PROJECTS

Step 1:

Open Android Studio and Import the project.

Step2:

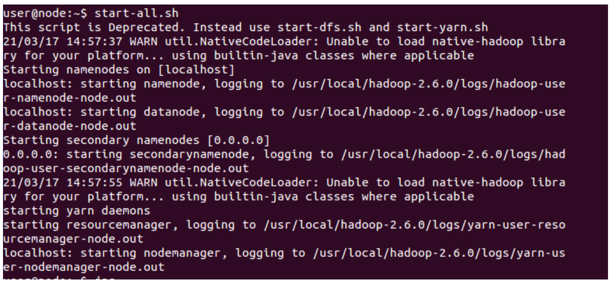
Connect the mobile to CPU or if you want create the virtual device.

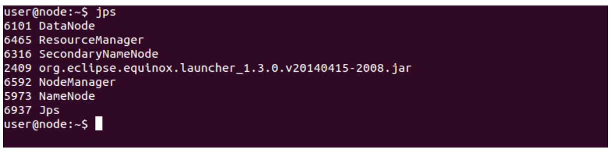
Step3:

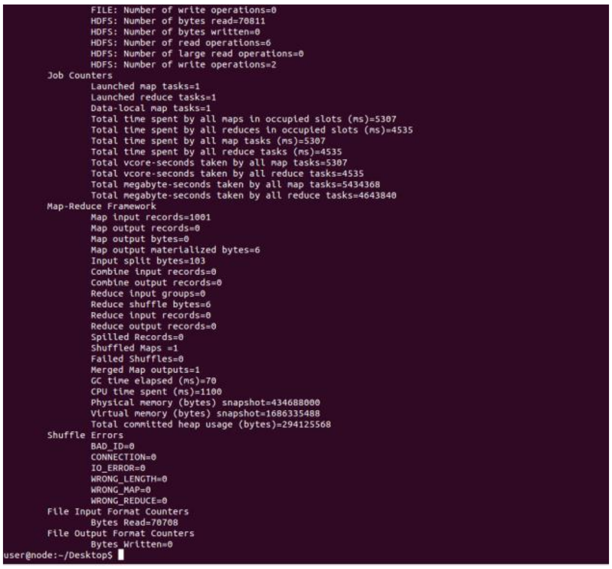
Click the green button to run the project.

V. RESULTS AND DISCUSSION

The results are as follows.







VI.CONCLUSION

Though there are significant developments in various aquaculture sectors around the world, aquaculture in India is still at its infancy and to use the information from different parts of the country. It is nations part to educate fish farmers and to provide an information system through Farmers association, in low cost, to fulfill their requirements. Industries and Research institutes in India will work on it for the blue revolution. Activities that improve communication and networking within the region were highlighted as an important means of developing and communicating the knowledge base of aquaculture. Advances in electronic communication, combined with specific cooperative efforts, should be used to increase the information exchange in the region. For efficient management of aquaculture resources, the information generated by various institutes or organizations should be brought under one hub for the benefit of research scientists as well as fish farmers. The information communication technology such as the Internet is now dynamically changing our life style and social consciousness will provide us a best tool for the information sharing in the field of Aquaculture. Several models such as fish growth prediction, decision support, precision farming and GIS ensure effective and sustainable fish production. A large number of trained professionals in aquaculture along with Information Technology are the immediate need of this Aquaculture informatics industry in order to accelerate the research, production and implementation.

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