

Thermmatology Scan Methodology Using Patel Sensor and Roku Processor

Dr. Dola Sanjay S¹, Sri Durga K², Jayasri M³, Mounika S³, Eswar Chandu Y³, Kumara Varma M³

Professor, Department Of Ece, Ramachandra College Of Engineering, Eluru, Andhra Pradesh, India.
asst Professor, Department Of Mba, Ramachandra College Of Engineering, Eluru, Andhra Pradesh, India.
Scholars, Department Of Ece, Ramachandra College Of Engineering, Eluru, Andhra Pradesh, India.
Corresponding Aurther: Dr. Dola Sanjay S

Abstract: Now A Day's Population Is Growing Rapidly As Well As Demand For Sea Foods Also Increases. Aquaculture The Fishes And Shrimp Depend On The Water Characteristics Of The Aqua Pond. The Parameters Of Water Can Vary A Lot During The Period Of A Day And Can Rapidly Changes Depending On The External Conditions. Hence It Is Necessary To Monitor These Parameters With High Frequency. For Maximizing Fish Yields, The Parameters Which Are To Be Kept At Certain Optimal Levels In Water. Wireless Sensor Networks Are Used To Monitor Aqua Farms For Relevant Parameters This System Consist Of Two Modules Which Are Transmitter Station And Receiver Station. The Data Transmits Through Gsm To The Data Base At Receiver Station. The Graphical User Interface Was Designed, To Convey The Data In The Form Of A Message To The Farmers In Their Respective Local Languages In Their Mobile Phones And Alerts Them In Unhygienic Environmental Conditions, In Order To Take Suitable Actions.

Keywords: Aquaculture, Wireless Sensor Networks And Arm Processor

Date of Submission: 24-03-2018

Date of acceptance: 09-04-2018

I. Introduction

Aquaculture Has Been A Fast Growing Industry Because Of Significant Increases In Demand For Fish And Seafood Throughout The World. Its Economic Importance Is Increasing Economically. Aquaculture –Also Known As Fish Or Shellfish Farming. Aquaculture Produces Food Fish, Spot Fish, Bait Fish, Ornamental Fish, Crustaceans, Mollusks, Algae, Sea Vegetables, And Fish Eggs. Researchers And Aquaculture Producers Are “Forming” All Kinds Of Fresh Water And Marine Species Of Fish, Shellfish, And Plants.

In Shrimp Culture Monitoring Of Ecological Parameters Allows The Smooth Management Of Water Quality In The Ponds To Avoiding The Incidence Of Unfavourable Conditions That Can Be Harmful For Organisms Besides, Some Samples Observed To Be Most Sensitive To Low Dissolved Oxygen In Water. Recent Analysis Of Water Quality Requires A Constant Observing Of The Distinctive Water Quality Parameters In The Significant Catchments .Accurate Measurement Of Water Quality Requires Measurement Of Parameters Like Ph, Dissolved Oxygen, Water Temperature, Water Level Among Others At Different Depths On The Spatial Determination. Measuring Instruments Should Belong To Wireless Distributed Sensor Networks, Small, And Cheap Sensors Which Would Likely Be The Most Ideal Choice.

Real Time Information Systems Developed And Deployed At Low –Cost Short—Range Modules Of Wireless Sensor Network. The System Consists Of Smart Sensor Nodes, Coordinator/Gateway Node And Personal Computer. The Coordinator/Gateway Node Receives Data Acquired And Sends Command To Pc In Order To Make Human-Computer Visualization Interface. Wireless Sensor Networks Are Used In Different Environmental Applications Such As Nuclear Facility Monitoring, Forest Fire Detection, Earth Quake Detection Etc. The Wireless Sensor Node Has Resource Constraints Like Low Processing Power, Memory Size And Limited Battery Energy. We Proposed To Use Wireless Sensor Networks To Have A Distributed Collection Of Sensor Nodes (Ph, Humidity Temperature Sensor Etc).Networked Together In Some Fashion So That They Send The Raw Or Proceed Sensed Data To Some Central Location Called Base Station Or Database Server Through Gsm. There Is A Lot Of Research Activity In This Area Addressing Problem Like Sensor Node Are Battery-Powered, Any Reduction In The Number Of Bits Transmitted Will Power Expensed On Sensor Node Placement For Optimal Coverage ,Topology Formation ,Routing ,In –Network Data Processing Techniques To Reduce Communication Costs, Operating System Design Etc.

II. Motivation

In Early Years, Considerable Amount Of Work Has Been Carried Out With Respect To Related Issues Yet Communications With The Outside World Are Still Not Yet Completely Investigated. Till Now They Have Not Yet Ended Up Boundless And Utilized Within The Different Applications In Which They Can Give Huge Profits.

“Created Appropriated Estimation Framework Focused Around Organized Brilliant Sensors To Screen Aquaculture Considers In Nature’s Turf. The Frame Work Comprises Of Four Sections : Information Gathering Hubs, Steering Hubs, On Location Focus And Undemonstrative Checking Focus; And Can Bring-Out Ongoing Observing Water Quality Parameters And Meteorological Parameters “.

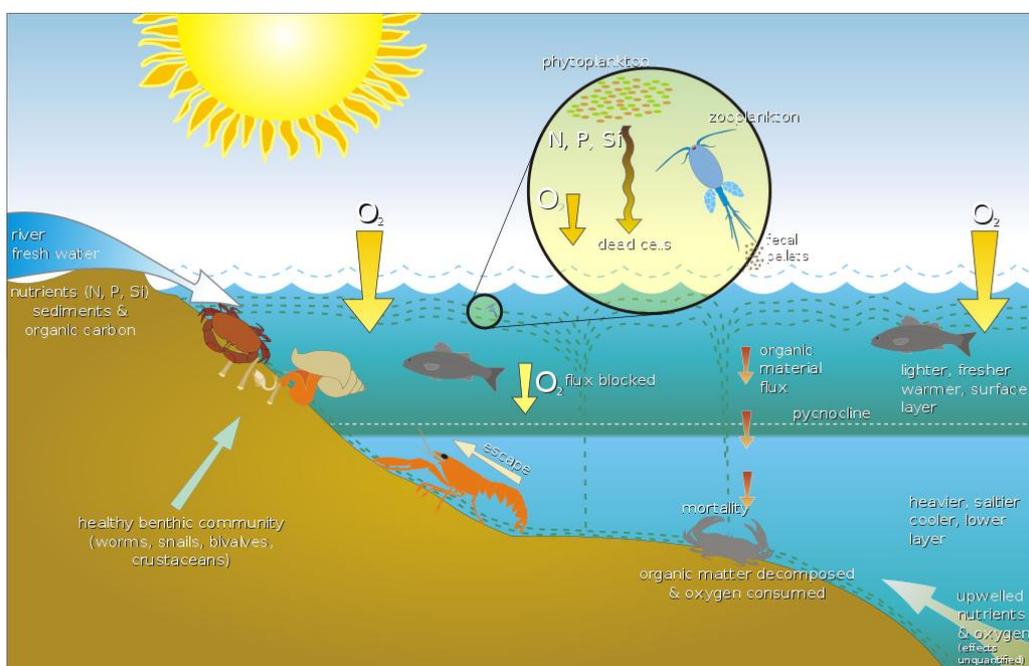


Fig: Block Diagram

III. Design

We Are Proposed That Our Equipment Is Working Automatically With No Need Of Human Being But It Gives The Information To The Farmers. The System Consists Of Two Modules Which Are Transmitting Station And Receiving Station With Gsm Networks. The Following Lists Represent Overview Of Aquaculture Monitoring System.

- I. Embedded System Design
- II. Radio Frequency Integrated Circuits
- III. Wireless Sensor Network
- IV. The Data Will Convert By Using Analog To Digital Converters.

Equipments:

Wireless Sensor Networks Have A Distributed Collection Of Sensor Nodes (Temperature, Humidity, Ph) Networked Together In Some Fashion So That They Transmit The Processed Sensed Data To Some Central Location Called Base Station.

Our Project Consists Of Components Are Following Below:

- Arm Processor(Lpc2148)
- Wireless Sensors
- Gsm Module
- Power Supply

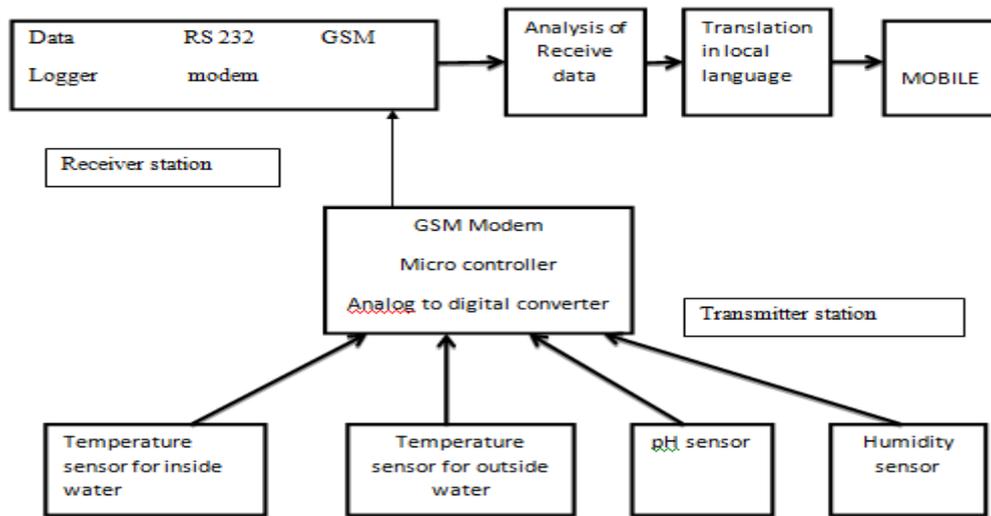


Fig: Block Diagram

Arm Processor:

In This Prototype We Use The Arm Processor, It Is The Industry’s Leading Supplier Of Microcontroller Technology, Offering The Widest Range Of Microcontroller Cores To Address The Performance , Power, And Cost Requirements For Almost All Application Markets.

Wireless Sensors:

Sensors Are Electronic Devices That Measures Response To Vary In Physical Environmental Conditions Like Humidity, Temperature, Pressure Etc..... It Senses Signals In Voltages (+5v,-5v)And Continuously Sends Signal In The Form Analog Signals And Also Converted In To Digital Forms By Using Analog To Digital Converter And Send To Microcontroller For Further Processing.

- Ph Sensor
- Humidity Sensor
- Temperature Sensor For Measuring Temperature Inside And Outside Water

Gsm Module:

Aquacultures Ponds Are Far Away To Villages And Power Supply Not Available To The Ponds, Data Collection Nodes Are Not Placed At Place. We Are Set Up The Receiver Node At Data Collection Centre In Villages Are Towns And Also Sends The Warning Message To The Farmers In Unhygienic Environmental Condition.

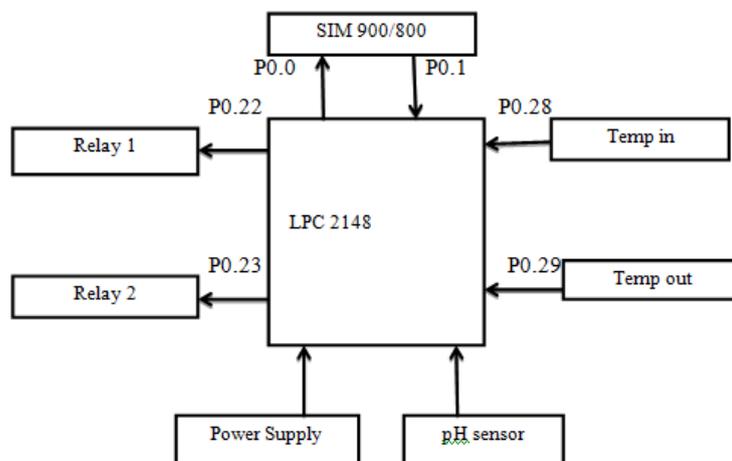


Fig: overall block diagram

Block Diagram:



Fig: Circuit Board

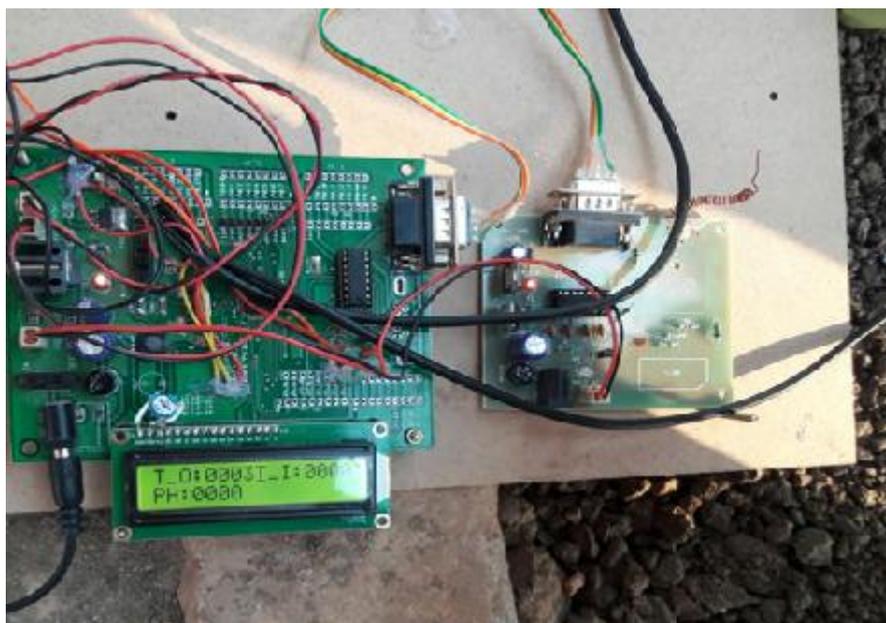


Fig: Circuit

IV. Result

Storing The Data In The Data Base Of Aquaculture Environmental Information Sent From Each Sensor Nodes In Real Time And Also Monitoring Data. So That User Can Have Access To Aquaculture Environmental Information. Information Can Be Displayed In Lcd Display. User Can Understand The Condition Of Aquaculture Environment And Take Suitable Action For Any Feasible Problem In Appropriate Time .

The Values Will Be Displayed On Lcd And Same Values Will Be Send By An Sms To The Farmer. The Sensor Will Montoring Continously And Send The Information To The Farmers.

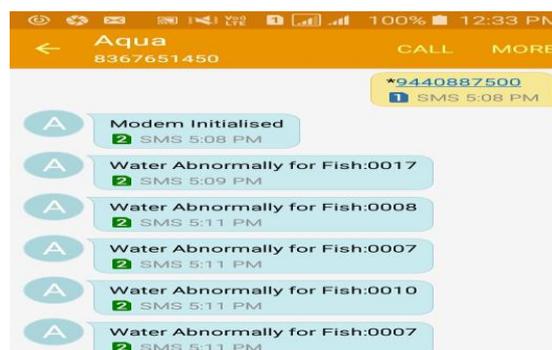


Fig: Sms Messages

V. Conclusion

Future, We Can Develop The Aerators Run Automatically. Do Sensor Is Required For The Measuring The Oxygen Level In Aqua Pond, We Have Not Using The Actual Do Sensor.

Reference

- [1]. Dola Sanjay S, Prof. S Varadarajan, "Reduction Of Electromagnetic Interference Using Micro-Strip Filter", Icpvs 2014, Elsevier Publications, Isbn:978-93-5107-228-7, Mar-2014,90-93.
- [2]. Ferreira N, Bonetti C, Seiffert W (2011) Hydrological And Water Quality Indices As Management Tools In Marine Shrimp Culture. *Aquaculture* 318: 425-433.
- [3]. Harun A, Ndzi Dl, Ramli Mf, Shakaff Aym, Ahmad Mn, Et Al. (2012) Signal Propagation In Aquaculture Environment For Wireless Sensor Network Applications. *Prog Electromag Res* 131: 477-494.
- [4]. Glasgow, Howard B, Burkholder, Joann M, Reed, Et Al. (2004) Real-Time Remote Monitoring Of Water Quality: Are View Of Current Applications, And Advancements In Sensor, Telemetry And Computing Technologies. *J Exp Mar Biol Ecol* 300: 409-448.
- [5]. Zhuiykov S (2010) *Water Quality: Physical, Chemical And Biological Characteristics*. Nova Science, New York.
- [6]. Bosma, Roel H,Verdegem,Marc Cj (2011)*Sustainable Aquaculture In Ponds:Principles, Practices And Limits*. *Livestock Sci* 139: 58-68.
- [7]. John Hargreaves A (2006) *Photosynthetic Suspended-Growth Systems In Aquaculture*. *Aquaculture Eng* 34: 344-363.
- [8]. Chien Y (1992) *Water Quality Requirements And Managements For Marine Shrimp Water Culture*. In: *Proceedings Of The Special Session On Shrimp Farming*. World Aquaculture Society, Usa.
- [9]. Carbajal J, Sanchez L, Progrebnyak L (2011) *Assessment And Prediction Of The Water Quality In Shrimp Culture Using Signal Processing Techniques* *Aquaculture.Nt* 19: 1083-1104.
- [10]. Lin Qi, Jian Zhang, Mark Xu, Zetian Fu, Wei Chen, Et Al. (2011) *Developing Wsn-Based Traceability System For Recirculation Aquaculture*. *Mathcomputer Model* 53: 2162-2172.
- [11]. 11. Wang Xin, Ma Longquan, Yang Huizhong (2011) *Uxi-Ly Water Level Sensor*.
- [12]. 12. Haijiang Tai, Shuangyin Liu, Daoliang Li, Qisheng Ding, Daokun Ma (2012) *A Multi-Environmental Factor Monitoring System For Aquiculture Based On Wireless Sensor Networks*. *Sensor Lett* 10: 265-270.
- [13]. 14. Zhu X, Li D, He D, Wang J, Ma D, Et Al. (2010) *A Remote Wireless System For Water Quality Online Monitoring In Intensive Fish Culture*. *Computer Electron Agriculture* 715: 53-59.
- [14]. 15. Kancharla Anusha Rani, Dola Sanjay S, Yedukondalu Udara, "Efficient Scan Based Testing For Memories", *Ijsetr*, Issn 2319-8885, Vol.06, Issue 08, Feb-2017, Pages: 1655-1657.
- [15]. 16. [Http://Www.Onsetcomp.Com](http://www.onsetcomp.com).
- [16]. 17. [Http://Www.All-About-Ph.Com](http://www.all-about-ph.com).
- [17]. 18. [Www.Topqualitytools.Co.Uk](http://www.topqualitytools.co.uk).
- [18]. 19. [Http://Www.Nmfs.Noaa.Gov/Aquaculture/What Is Aquaculture.Html](http://www.nmfs.noaa.gov/aquaculture/what_is_aquaculture.html)

About Author:



Insightful Experience In Undergraduate And Postgraduate Courses, Like Micro Wave Engineering, Antenna Wave Propagation, Field Theory, Electromagnetic Fields, Electromagnetic Wave And Transmission Lines, And Related Practice Sessions And Tutorials.

Research Area Electromagnetic Interference And Electromagnetic Compatibility, Handling Various Funded Projects.

Dr. Dola Sanjay S "Thermmatology Scan Methodology Using Patel Sensor And Roku Processor" *International Journal of Engineering Science Invention (IJESI)*, vol. 07, no. 04, 2018, pp 34-38