ISBN: 978-93-88901-24-6

EMERGING TRENDS IN BASIC AND APPLIED SCIENCES

VOLUME II

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Dr. Sharadrao A. Vanalakar
Mr. Chetan P. Bhagat

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Dr. Satish M. Patil
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BHUMI PUBLISHING

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Bhumi Publishing

2023

First Edition: January, 2023

ISBN: 978-93-88901-24-6

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Published by:

Bhumi Publishing,

Nigave Khalasa, Kolhapur 416207, Maharashtra, India

Website: www.bhumipublishing.com

E-mail: bhumipublishing@gmail.com

Book Available online at:

https://www.bhumipublishing.com/books/

PREFACE

The new respiratory pandemic disease i.e. COVID-19 has caused disruptions in the lives and customs of people with significant impact on the economies of nations. The outbreak of the disease is a global health emergency and of international interest. This global health challenge leads to the infection, morbidity and mortality of many people.

In the weeks since the World Health Organization manifest the corona virus (COVID – 19) episode a worldwide unstipulated wellbeing crisis, the COVID-19 pandemic has influenced 212 nations and forfeit increasingly than 400,000 lives. Still today there is no successful remedy to lockup the spreading of this infection. The pandemic is developing prior disparities, uncovering vulnerabilities in social, political and financial frameworks which are thusly intensifying the effects of the pandemic.

Governments of various nations adopted restrictive measures involving both within the countries and at international borders as effective response to the corona virus pandemic. These measures includes confinements of workers and order to work from home, banning of social and religious gatherings, closure of market places, closure of workplaces including airports, building or creation of testing and isolation centers, quarantining/isolation of suspected persons, self-imposed isolations, and the use of face masks whether surgical or cloth type in situations where there is a cogent reason to defy the restriction.

Academic communities were not left out as institutions of learning were requested to close in many countries since it is very easy to spread the virus among students and youths in tertiary institutions where socialization is an essential part of their lives.

To address the various issues related with the COVID – 19 we have published the present book. The interdisciplinary approach of the book will make the book useful and informative to the students, teachers, researchers, scientists and policy makers in India and abroad.

We thank all contributors, publishers and all our well-wishers for their blessings, without which this book would not have come into existence.

- Editors

CONTENT

Sr. No.	Book Chapter and Author(s)	Page no.
1.	**POPULATION DYNAMICS OF APHID *(APHIS CRACCIVORA)* INFESTING COWPEA IN ASSOCIATION WITH WEATHER FACTORS** Sachin Sonba Kalbande, Manoj Kumar, Shirish Kumar and Chandreswar Prasad Rai	1 – 4
2.	**FAMILY ENVIRONMENT AND ITS IMPACT ON CHILDREN'S ACADEMIC SELF CONCEPT** Kritika and C.K Singh	5 – 9
3.	**A CRITICAL REVIEW ON THE REMOVAL CHARACTERISTICS OF HEAVY METALS FROM WASTEWATER BY LOW-COST ADSORBENTS** Lokesh Baloat	10 – 16
4.	**SYNTHESIS OF SCHIFF BASES AND BIOLOGICAL ACTIVITIES OF THEIR TRANSITION METAL COMPLEXES** D. T. Sakhare	17 – 20
5.	**CULTIVATING GREEN CHEMISTRY RESEARCH INTERESTS IN POSTGRADUATE CHEMISTRY LAB COURSE EXPERIMENTALLY** M. Tamilselvi and S. Uma	21 – 24
6.	**PHOTODEGRADATION OF DYES USING BIO-WASTE MATERIAL: A BRIEF REVIEW** Chandrashekhar R. Patil, S. M. Patil, U. B. Chougale, M. S. Desai, V. A. Jagtap, C. P. Bhagat, P. R. Kharade. Sanchita. M. Dhumal, Shital M. Kamble and D. N. Zambare	25 – 27
7.	**ANALYSIS AND ASSESSMENT OF SOIL SAMPLE FOR THEIR PHYSICO-CHEMICAL PROPERTIES FROM PALUS TEHSIL (SANGLI DISTRICT)** A. L. More, J. C. Thorat and D. C Kore	28 – 33
8.	**APPLICATIONS OF CLOUD COMPUTING AND COMPUTER HARDWARE MONITORING SYSTEM** Neenu Ann Sunny	34 – 37
9.	**VIRTUAL INTELLIGENT SOFTLAB ON SMARTPHONE** Bhaskar Yadao Kathane	38 – 41
10.	**CHALLENGES AND FUTURE OF AI-BASED REQUIREMENT ANALYSIS: A LITERATURE REVIEW** Rajendra Budake, Sudhakar Bhoite and Kabir Kharade	42 – 45
11.	**CLOUD COMPUTING: APPLICATION RELATED TO SCIENCE, EDUCATION, BUSINESS AND CONSUMER** Swati Anil Patil	46 – 48
12.	**TRANSFORMING HEALTHCARE RECORD SECURITY SOLUTIONS USING BLOCKCHAIN TECHNOLOGY: A NOVEL APPROACH** V. L. Badadare, A. M. Shaikh, R. S. Kamath and U. R. Pol	49 – 54
13.	**PRECISION POULTRY FARMING USING IOT** L. Dhanabal	55 – 59

14.	**ASSESSMENT OF CONSEQUENCES OF DIFFERENT OCCUPATION AND WORKING HOURS ON SLEEP QUALITY USING PSQI** Rozmina. A. Kazi and B. M. Gore	60 – 64
15.	**A PRELIMINARY STUDY ON BIODIVERSITY OF SRI VENKATARAMANA SWAMY INSTITUTE CAMPUS, BANTWAL, DAKSHINA KANNADA, KARNATAKA** Supreet Kadakol and Vinayaka K.S.	65 – 71
16.	**SEARCH AND RESCUE OF BUTEA MONOSPERMA VAR LUTEA (WITT) MAHESHWARI (YELLOW PALASH) AN ENDANGERED MEDICINAL PLANT SPECIES** Aparna M. Yadav	72 – 75
17.	**PLASTIC WASTE TO FUEL PRODUCTION: A DOUBLE GAIN CONCEPT** Manoj Patidar	76 – 78
18.	**EFFECT OF PH ON GROWTH OF *FUSARIUM OXYSPORUM* F. SP. *CORIANDRII* CAUSING WILT OF CORIANDER** Rajiv Savanta Karpe	79 – 82
19.	**EFFECT OF CHICKEN WASTE MANURE ON THE GROWTH RATE OF *VIGNA RADIATA*** Vaishnavi Ghadage and B. M. Gore	83 – 88
20.	***SESAMUM INDICUM* L. RELIGIOUS AND TRADITIONAL MEDICINAL PLANT** Manik Khandare	89 – 92
21.	**MICRO-ALGAL TROUBLE IN WATER TREATMENT PLANTS IN DHULE CITY (M.S.)** Archana M. Chaudhari	93 – 94
22.	**THE ADVENT OF VIRTUAL REALITY/ AUGMENTED REALITY IN THE FIELD OF LIFE SCIENCES EDUCATION** Aditti Bhadwal and J. N. Baliya	95 – 100
23.	**CHANGES IN LARVAL PROTEIN OF *MARUCA VITRATA*** S. A. Jadhav and R. M. Gejage	101 – 104
24.	**STUDY OF MESOFAUNA DIVERSITY IN AGRICULTURAL LAND: A REVIEW** Anupama Pawar and Bharati Wali	105 – 108
25.	**THE CHIEF, EASY SOURCE OF BOTANICALS USED AS INESTICIDES IN AND AROUND KOLHAPUR DISTRICT OF MAHARASHTRA (INDIA)** K. K. Abitkar, A. A. Gondhali and P. D. Shiragave	109 – 114
26.	**PARTIAL CHARACTERIZATION OF LARVAL TRIACYLGLYCEROL ACYLHYDROLASE OF *HELLULA UNDALIS* (FABRICIUS)** R. J. Sawant and R. M. Gejage	115 – 118
27.	**TOXICITY INDUCED ALTERATION IN ENZYME PROTEASE ACTIVITY OF FRESHWATER SNAIL *BELLAMYA BENGALENSIS*** S. V. Lagade, V. M. Lagade and N. A. Kamble	119 – 123
28.	**ENVIRONMENTAL DEGRADATION OF NIRA RIVER: A GEOGRAPHICAL STUDY** Shrikant Tukaram Ghadge	124 – 128

29.	**STUDIES ON MORPHOMETRIC MEASUREMENTS AND MERISTIC COUNTS OF *PARATRYPAUCHEN MICROCEPHALUS* (BLEEKER, 1860) FROM MADH, MUMBAI, MAHARASHTRA** Ruchi Pujari, B. M. Gore and S. P. Jumale	129 – 133
30.	**Closure operator and α-ideals in 0-distributive lattices** S. S. Khopade and S. P. Thorat	134 – 139
31.	**MN DOPED ZNO NANOMATERIAL FOR PHOTOVOLTAIC APPLICATIONS** Shivaji S. Anarthe, Pradip M. Dighe and Kakasaheb C. Mohite	140 – 143
32.	**SYNTHESIS, THERMAL & DIELECTRIC STUDIES OF CITRIC ACID MODIFIED EUF_3: GD NANOPARTICLES** Manoj P. Mahajan and M. M. Khandpekar	144 – 147
33.	**AN OVERVIEW OF METAL SULPHIDE NANOMATERIALS FOR SUPERCAPACITOR APPLICATION** P. G. Suryawanshi, S. S. Patil, S. A. Vanalakar and A. G. Bhosale	148 – 153
34.	**STRUCTURAL AND ELECTRICAL PROPERTIES OF DYSPROSIUM DOPED COBALT FERRITE** Siddheshwar D. Raut, Shyam S. Patil and Shakuntala A. Shinde	154 – 157
35.	**NEGATIVE AIR ION VARIATIONS 50 FEET FROM KARAD-TASEGAON ROAD AT SEMI URBAN STATION PALUS (17.0976° N, 74.4496° E) INDIA** S. D. Pawar	158 – 161

APPLICATIONS OF CLOUD COMPUTING AND COMPUTER HARDWARE MONITORING SYSTEM

Neenu Ann Sunny
Post Graduate Department of Computer Applications and Artificial Intelligence,
Saintgits College of Applied Sciences Pathamuttom, Kerala, India
Corresponding author E-mail: neenu.ann@saintgits.org

Abstract:

According to the viewpoint of client assistance and based on network, this paper proposes a PC equipment checking framework dependent on cloud stage, what isolates the information procurement, stockpiling, and investigation dependent on distributed computing equipment observing framework. The PC equipment observing framework dependent on cloud stage isolates information stockpiling and access. The cloud stage binds together demonstrating investigation of capacity equipment boundaries for enormous measures of information, to give clients complete equipment upkeep data. This paper presents the general plan of the equipment checking framework, and afterward gives the framework structure and related key innovations of execution occurrence.

Keywords: Computer hardware monitoring system; cloud computing

Introduction:

Checking PC equipment running boundaries is vital to equipment support. During equipment temperature checking, the high temperature prompts temperamental running of the PC framework, and surprisingly influencing the help life of the gear. Consequently, equipment boundaries checking is especially significant in unattended worker rooms, bunch workers and gigantic cloud worker stages. PCs, scratch pad PCs, advanced mobile phones, tablets or a shrewd terminal that can run program are frequently delivered by various makers having altogether different equipment piece and creation measure. It is hard to investigate viably the wellbeing status of the equipment gadget. We can evaluate all the more viably the wellbeing status of the equipment and do convenient upkeep in the event that we can do level and vertical displaying investigation of the chronicled information of the different boundaries of equipment, and the wellbeing status information of the comparable equipment hardware.

Furthermore, the greater part of the current ventures or schools set up PC room climate observing frameworks to assemble PC equipment boundaries, for example, temperature checking. The deformity is that a significant speculation of equipment is needed to run and can't straightforwardly distinguish the temperature of the PC and different states and boundaries. Simultaneously it can't utilize the assets of existing PC framework itself. A wide range of figuring gadget and smart terminal support frequently can't peruse the client's set of experiences of equipment running boundaries. This likewise brings incredible bother for the equipment upkeep.

In this paper, according to the client administration perspective and based on network observing boundaries, we propose a PC equipment checking framework dependent on cloud stage. It is a distributed computing equipment checking framework that isolates the information securing and capacity the board. The PC equipment checking framework dependent on cloud stage isolates information stockpiling and access. In light of the stage it brings together displaying investigation of capacity equipment boundaries of tremendous measures of information, to furnish clients with great equipment upkeep data. This paper presents the general plan of the equipment checking framework, and afterward gives the framework structure and related key advances of execution case.

System composition

Through the checking programming to acquire the compelling boundaries by observing working boundaries of an assortment of PC equipment, working boundaries and related programming and through the organization timing to the checking worker to send all accessible; observing worker in the cloud gets and measurements, examination and preparing a wide range of boundary data, brought together calculation, in view of data of different boundaries controlled by observing PC equipment wellbeing state and save the boundary and state, speedily advise the clients of wellbeing status. The customer part can be made out of three sections: the customer part, the cloud administration module and the correspondence organization. The customer part is run on an observed PC or shrewd terminal, and the worker part is sent on the screen worker group.

Communication protocol design

The fundamental work measure is that the customer parts read a wide range of equipment and working boundaries of the machine, and the boundaries are communicated to the observing worker, and the running boundaries are handled by the checking worker in the cloud. The UDP/IP convention is utilized as the fundamental correspondence convention between the customer and the worker. Observing data information bundle design is as per the following: the fundamental information unit is 8 bytes, an information unit that addresses a boundary worth of an equipment gadget. The equipment gadget number is 1 byte, the worth scope of 0~255, it can communicate 256 sorts of equipment, like the arrangement in the arrangements of 1, express CPU, 2 express the memory, 3, said the hard plate, and so on The boundary type is a byte, range is from 0 to 255, can be communicated 256 sorts of boundaries, for example, arrangement arrangements 1 address temperature 2 said fan speed, three voltages and 4 addresses the recurrence and 5 addressing CPU use. The boundary esteem is 6 bytes, the initial 4 bytes address the number piece of the boundary, and the following two bytes address the decimal piece of the boundary. The correspondence convention to UDP/IP convention information transmission.

Process design

The process design of computer client components Set the significant working boundaries, including the worker IP address, port number and the time stretch to send information to the worker. Port number should be predictable with the worker, normally set the worker port number, and afterward as per the port number of the worker, to set the port number of the understanding programming. Start the product, the product is set to begin with the working framework to begin. Peruse the capacity worker IP address and clock time stretch. IP address can be set in the program and don't need to set. The default clock stretch is 60s, can be changed by the real circumstance.

Customer parts to hang tight for the clock time to. At the point when the clock time, read the important equipment sensor boundaries and other working boundaries. Send the read information to the worker through the UDP/IP convention.

The interaction plan of cloud worker's administration part

The cloud administration part measure is first set up an audience port number on the worker side, and the progression is possibly done when the primary activity is completed. Subsequent to setting, this progression can be overlooked. Administration programming can set a default port number, in the event that you don't physically set, the product naturally takes the default port number. In the wake of beginning the cloud administration part, the assistance part gets the port number of the set listening port. The cloud worker's administration part listening the port. When there are new information bundles, investigation of the information bundle, fundamentally including: legitimacy confirmation, admittance to one another's IP address, admittance to the opposite side of the host name and equipment working boundaries. As indicated by the host name and IP address to decide if the customer has been tuning in the host

library, in case there is no expansion in the host data, in case there is to refresh the host state and saving.

Parameter reading

Presently PC framework motherboards, CPU and hard drive and other equipment gadgets are furnished with sensors, can gives CPU temperature, CPU voltage, CPU fan speed, the temperature inside the host and hard circle likewise gives the hard plate boundaries, for example, temperature and equipment sellers give the read sensor information access interface boundaries can be given by the working framework I/O interface work read out the motherboard BIOS put away in an assortment of sensors, real time information, significant boundaries are: temperature of CPU, CPU voltage, CPU fan speed, the temperature inside the host, hard circle temperature. As indicated by the need, you can likewise peruse the working framework to give the CPU use and different boundaries.

At present customer framework motherboard, CPU and hard drive and other equipment gadgets are coordinated sensors, can gives CPU temperature, CPU voltage, CPU fan speed, centralized computer temperature, just as the hard circle likewise gives the hard plate boundaries, for example, temperature and equipment merchants give read related sensor information access interface. The fundamental strategy is to peruse the continuous boundaries of different sensors put away in the equipment through the API capacities given by the working framework. For example, in the windows framework would first be able to call API work Create File to open the gadget and returns a handle to a gadget related with. Then, at that point, and afterward call the API work Device Io Control capacity and driving correspondence program, and afterward read the different boundaries of the hardware. The essential strategy to get the working boundaries of the working framework is to call the interface capacities given by the working framework to finish the.

In the customer parts, as well as perusing the equipment sensor boundaries, yet additionally can undoubtedly peruse the working framework to give an assortment of boundaries, like the utilization of CPU and other significant boundaries. As indicated by the real interest, you can likewise peruse some significant administrations, for example, Windows framework programming, including Server SQL and other running state boundaries for these workers to screen. The center capacity of the worker part is on the organization asset the executives and booking, for example asset booking, assignment and recuperation work. This is the asset the executives and booking module to understand the capacity of this layer, the piece work is like the customary independent working framework. The prerequisites for booking and the board of organization assets to address the issues of various the requirement for various qualities of various assets, procedures and techniques for planning, distribution and recuperation calculation dependent on the acknowledgment of assets on request versatility stream. The worker part likewise has interface with the interface module is utilized to understand the cooperation with the client, get and complete from the upper application and client demands. The worker has two uncommon the module, network correspondence and advancement module and organization correspondence and administration convention module. The customer network correspondence and streamlining module fundamentally finishes Interrupt start terminal interference, and the sign is communicated to the web worker, by the worker to manage. Organization correspondence and streamlining module of the worker end will react to demands from the customer. The first is an organization address relegated to the customer, to work with the ensuing correspondence; besides, it will on the client's character verification and will get back to help network independent framework model rundown of working frameworks to carry on a decision to the client; after clients pick what you need to run a working framework occasion, and afterward call the significant transmission convention will part of the information to the terminal, customer association.

Virtual asset worker part driver module, is the organization dependent on interfere with the executives, complete the driver and the administration of virtual assets. Counting the accompanying three capacities: (1) on the actual equipment, for example, designs card, for example, driving, driving after all equipment gadgets independent organization framework in (2) in the genuine equipment drive dependent on the further arrangement of virtual assets, like the virtual CPU, virtual memory, virtual memory, virtual gear assets development, driving and the executives; (3) execution of huge

scope information stockpiling, network stockpiling and recovery of enormous information. Asset stockpiling and the board module depends on virtual organization stockpiling, further instances of the working framework, applications and information association, stockpiling and the executives for clients productively Visit. In view of distributed computing equipment checking framework equipment assets are partitioned into three classes: the first is made out of terminal, worker and organization equipment stage assets. Accordingly, with the conventional working framework just administration and booking applications.

The analysis of communication efficiency

Observing framework is regularly run on the current organization, all together not to influence the current arrangement of CPU use, and the qualities of the variety of boundaries like temperature, the circumstance of the customer parts can be to the extent that this would be possible, the default is 10s. General proposals are set to 30s. Simultaneously, quite far to lessen network traffic. For the checking framework, the measure of data is little. To decrease the effect of the current organization traffic, the creation takes on the UDP/IP convention between the host and the worker. IP convention related guidelines records, the host or organization gadget IP information detailed length will not be under 576 bytes, the initial 20 bytes of IP, the most extreme length of 40 bytes. In other words, IP net charge no less than 516 bytes' length, and afterward deduct the UDP convention header 8 bytes, 508 bytes. It tends to be assessed that the essential information unit of every transmission checking data can be finished in an information bundle in the organization when close to 56 units are free. For the most part can be perused in the BIOS equipment working boundaries have 30 or thereabouts, which is a significant CPU temperature, CPU fan speed, frame framework temperature and other key boundaries. In this manner, it can guarantee the observing data in a parcel to finish the transmission, there is no instance of split information bundles. Information doesn't exist on account of sub parcels; you can consider the utilization of the UDP convention such an easy route to lessen the effect of the current organization traffic however much as could be expected

Conclusion:

The equipment checking framework dependent on distributed computing is proposed in this paper. Through consistently perusing a wide range of boundaries of the sensor processing gadgets, and afterward sent to the cloud to store and break down information, it can decide the wellbeing status of PC types of gear. It has a decent expansibility. It can screen more definite PC activity boundaries. It can better and all the more successfully characterize PC running states. It is helpful for checking, the board and examination of equipment short comings, it can all the more viably keep up with hardware. In this paper, the equipment boundaries checking framework dependent on distributed computing can successfully lessen the expense of hardware support.

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