Exploring Various Sensor Network and Its Implementation

Sathiyaraj Chinnasamy, M. Ramachandran, Viganesan Sigamani
REST Labs, Kaveripattinam, Krishnagiri, Tamil Nadu, India.
*Corresponding author Email: sathiyaraj@restlabs.in

Abstract. The sensor is some kind of physical environment A device that detects and responds to entries. Specific input is light, heat, motion, humidity, pressure or whatever other environmental phenomena. Commonly used sensors are classified by size Electricity or energy or Magnetic or radio sensors, Humidity sensor, fluid speed or drive sensors, Pressure sensors, heat or heat or temperature sensors, Proximity sensors, optical sensors, etc. Level sensors, sensitivity, clarity, linearity, zero sliding and full range sliding, range, repetitive reproduction and reproducibility are important standard characteristics of sensors. Sensitivity is a measure of the change in the output of the sensor associated with the change of the unit of input (measured quantity.) Which converts Censor? The sensor is another that detects changes in the environment Is a device that responds to a specific output on a computer. A sensor is an analogy voltage (or some) that can measure a physical event at times the digital signal) changes, transforming it into a scene that can be read by man or sent for further reading or processing. Is linear the Maximum deviation between the measured values of the sensor from the ideal curve. Hysterics: When the input varies in two ways it is the difference in output- increase and decrease. Reproduction: This is defined as ability sensor to generate the same output when the same input is used.

1. Introduction

A sensor network consists Small, powered devices and wireless or wired network infrastructure. ... Data transfer sensor network for analysis and application connects to the Internet or computer networks. The sensor network nodes sense and control the environment. Such networks are an industrial process Monitoring and control and mechanical hygiene Industrial and consumer such as tracking Are used in applications. WSN stands for "nodes" - Hundreds or thousands Nodes, each node to the other two sensors Connected. In the Wireless Medical Sensor Network (WMSN), to perceive the patient's sensitivity information Bio-sensors are fitted to the patient's body. is then sent to remote medical centers for further processing. Primary sensors used in medical devices Pressure, force, ventilation, oxygen, pulse oximetry, Sensitivity to temperature and barcode. Above Sensors in the operation of the device plays an important role. The monitoring system, which is affiliated with the hospital, enables Home Medical Assistance through IoT comment. Wireless Sensor Network (WSN) Is a wireless network without infrastructure, Includes a large number of wireless sensors. computer, physical or high pressure, high pressure, high voltage, used temporarily to monitor environmental conditions such as high speed. Monitoring Self-structured and infrared Such as non-wireless networks Physical or environmental conditions and collaborating to send an important location or through the network their data to the single hole. The sensor network is a group of nodes where each node is a small computer capable of collecting input data from its sensors and communicating with other nodes via radio. So, a sensor is a network is an organization distributed outside the book, each sensor terminal is treated as a source of data Alternatively distributed approach, WSN then creates the distributed database. Design of the rows with columns representing the sensor properties.

2. Sensor Network

Early sensor network views expected that sensor networks would generally have identical devices in terms of hardware and software. Some programs, such as amorphous computing, consider sensor nodes to be indistinguishable, meaning that their hardware does not even have personal addresses or IDs. This view is based on the observation that large-scale sensor nodes cannot be produced cheaply. However, among the many prototype systems available today, sensor networks have different devices. The terminals may vary in type and number of connected sensors; Some computationally powerful "computational" nodes can collect, process, and guide sensitive data from many more finite sensitive nodes; Some sensor nodes are fitted with specialized hardware Global Positioning System (GPS) receiver Such as, while other nodes act as beacons to guess their location; Some terminals may act as gateways to telecommunications networks (GSM networks, satellite networks or the Internet) [1]. For configuration monitoring First generation sensor networks, one for centralized processing The terminal may be data acquisition systems that collect data. In this article, the wireless sensor network for receiving configured data We will discuss the design and evaluation of the system (called Wisden). Weston combines two innovative methods, larger configuration, which would not be a problem if there were GPS devices at each end, but GPS compatibility with Wireless sensor networks at the time of the sensor network Well documented [2]. The military can also Use Sensor network technology. They can put such networks behind enemy lines and can monitor the movements / presence and / or presence of troops the area being used Collect geographic information. Other Possible Areas Home / Office Automation, Education Inventory Tracking, Infiltration detection, motion monitoring, mechanical malfunction, toys and

more. Numerous studies and various features of wireless sensor networks have been discussed. In this poll, we provide a comprehensive overview of the in the literature on wireless sensor networks Discuss and discuss the proposed solutions The most recent developments to be made and challenging Problems. In particular, it deals with increasing importance survey standards, review these standards and compare their solutions with those expressed in the recent literature fig 1 [3].
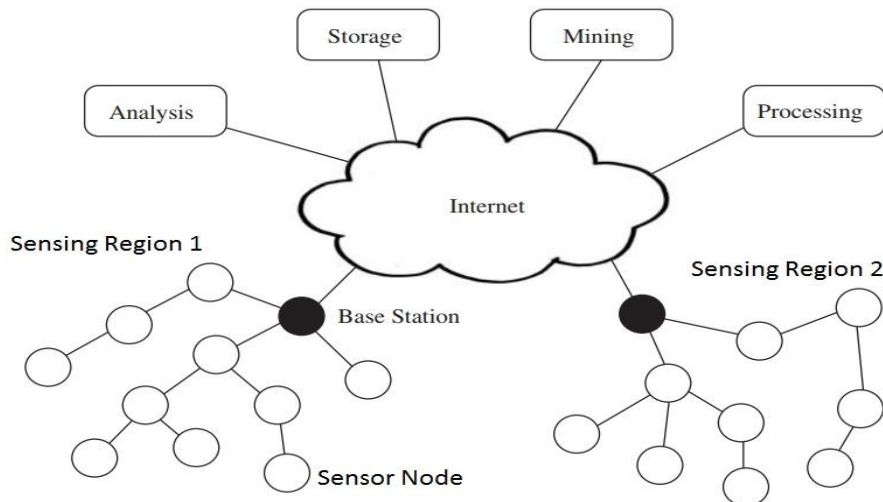

FIGURE 1. Sensor network

Sensor mounting methods have failed to function well, the anisotropic Terrain sensor networks and The sensor is used by complex terrain networks. Furthermore, the overall anisotropic network and Overall stabilization of the complex terrain the sensors accurately Some sensor to avoid the problem of errors Measurement error is a fixed problem in mounting systems.Sensor networks do not have to evaluate the location information of all sensors in the sensor network. For example, in a small area Evaluate only the status information of the sensors within the area Some sensor to avoid the problem of errors to be done. Because it usually takes a lot of time and energy position all the sensors, it is desirable to enable sensor positioning as neededSensor network [4]. In contrast, sensory and reactive applications are generally characterized by specific temporal and regional processing. The implementation of regulatory laws requires continuous monitoring of the environment, which is approximately estimated by the sample from time to time. Furthermore, actuators are limited in the extent to which they can affect the environment, so they usually do not have to collect sensor measurements outside the scope of their operation [5]. However, the BWSN results prompted further research, indicating Based on events A, B and C Sensor networks are similar the two water supply systems used in BWSN. Because of this characteristic, the Sensor Network Design B and C in cases A is reasonable Will work in mode [6]. In this example, we expect to execute applications simultaneously on Both node and network levels. At the tip level there can be multiple applications at the same sensor terminal, they must be activated simultaneously. At the network level, applications are applied to different (connecting) parts of the network. Variations in the environment will change the applications May reorder rearrangements, Code migration at the nodes in turn May be required. In addition, network administrators The application may improve the software, related to this Nodes require code localization [7]. In addition to increasing the reliability of the results, the use of a microcontroller instantly activates multiple channels of gesture input (e.g., measuring the intensity of a strike and classifying the type of strike). We extract the accuracy or validity rating by cross-checking the waveform properties detected from different sensors and the differences between the four level ratings obtained from four different sensor triples (since there are four picks, we have an unnecessary amount of freedom) [8]. Anyone can listen to the message sent by the radio This concern is most relevant to wireless environments. So, if not safe, very effective and even the convenient layout does not attract users. To solve this problem, WSNs sensor researchers have implemented a number of security protocols for use on networks. [9]. Due to the hardware limitations of the sensor devices, Limit-free localization algorithms are the most expensive range. A cost-effective alternative to fundamental approaches. The higher the density of seeds, so each node will ask for more seeds, and the network Drowning hop counting techniques. Pre-defined robot localization When you find a robot on the map, Localization in sensor networks in a free place or Works on unmapped terrain. Second, a robot is relatively good at its motion on a pre-defined map has control and probability is knowledge. A sensor node is usually slightly above its motion or have no control over and its Do not know the speed and direction. Third, a robot can and does receive accurate information from symbols detect the presence of a sensor node within it [10]. These cognitive techniques used in sensor networks are advances in cross-layer approach They promise, especially knowledge and learning Based on. However, licensed these techniques Opportunism the spectrum in the lower layers of access Do not explore CR, this may be an added benefit. In

terms of knowledge, learning and information sharing It reinforces the author's perspective on the benefits that can be derived from a holistic approach to cognition in sensor networks [11].

3. Medical Sensor Networks

Medical applications of wireless sensor networks, Existing Health and Aims to improve monitoring services, especially for the elderly, children and the chronically ill There are many benefits that can be achieved by these systems. To begin with, remote monitoring capability is a key advantage of a wide range of health systems. With remote monitoring, it will be easier to identify emergencies for at-risk patients, and will enable people with a wide range Very independent and Cognitive and to achieve easy life Physical disabilities. Children and infants' way are most safely cared for when their parents are not around. The reliability of specialized caregivers will be reduced [12]. Medical sensor networks have grown in the fields of business and education. Commercialized sensor products, such as Sanest, Embed sensor rows in clothing. Body nets at ACT is and academic research like UCLA at the University of Alabama, body part of the sensors Detects data using the network and sends it to the recipient via Wi-Fi enabled PDA. All of these projects reveal many flaws in their design, this restricts their use in mass accident cases. These systems are often required gateway hardware. These gateways increase costs and are often patient, relies on a single wireless communication connection for data transfer, which is poorly measured and 188 is often unavailable in emergency situations. In addition, these products do not have the flexibility to work with standalone and closed solutions, third-Party software or sensors. These products are flexible for emergency responders, of measurable and inexpensive technologies The need was not addressed. MiTag is a solution to this gap fig 2 [13].
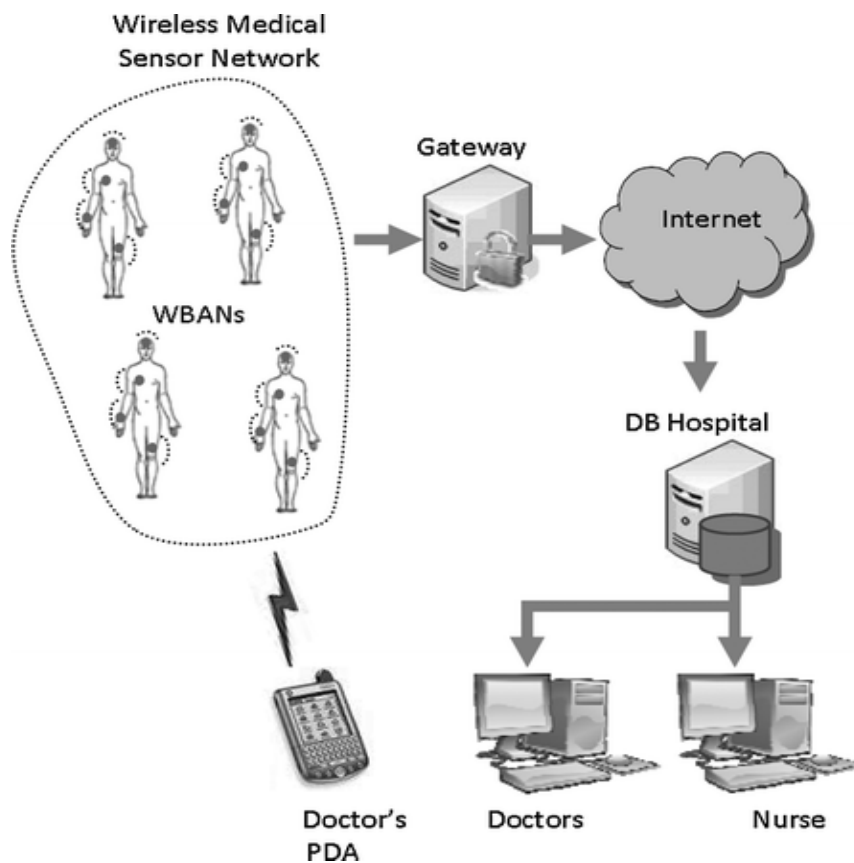

FIGURE 2. Medical wireless sensor networks

Clinical data collected by WMSNs are highly sensitive because Leakage of that data may invade patients' privacy and altering that data may be improper Lead to diagnosis or treatment. The operational requirements for WMSN's health care application based on previous work are listed below. Medical sensor networks (MSNs) enable health monitoring of health sites anywhere in their daily lives without restricting the freedom of users. Build trust between distributed network companies, security of distributed networks such as mobile transient networks and sensor networks Recognized as a powerful tool for improving performance. However, due to the personal functionality and security requirements of MSNs, most existing belief systems do not apply to MSNs. Also, like most security plans, trust management Organizations can also be affected by attacks. Unfortunately, this problem is often overlooked in existing belief systems [14]. Several accreditation Protocols for WMSNs for medical applications have been proposed. He proposed the Real-Time Heart Patient Healthcare Monitoring System to the American Health-Care Society [15]. Security Requirements for WMSNs While traditional networks, such as Availability, confidentiality, integrity, authentication, data purification and rejection, resource protection protocols using wireless medical sensors Have emerged as one of the major problems in health applications. There are other

research studies on, however, that these studies discuss limited information about these security issues, Therefore the topic of security in wireless medical sensor networks has not yet been properly explored, it offers ample opportunity. Ways to explore secure wireless healthcare applications [16].

4. Wireless Sensor Networks

Wireless sensor networks and temporary networks including routing algorithm design, performance analysis, energy efficient query processing and network modeling. High data capacity is an important design objective in wireless sensor networks. In standard synchronization models, the performance of the MAC and routing algorithms is of secondary importance. Network alignment is a very influential parameter to increase data capacity, such as node position and terminal power supply [17]. We plan to compare the data development capabilities of the four techniques, i.e. the variable transfer capabilities of the sensors Wireless sensor networks. Since energy is an important characteristic of those networks, it is necessary to focus on both energy consumption and energy consumption distribution when using communication protocols to maximize the life of the entire network. Our purpose is to present and discuss criteria designed to analyze communication protocol performance fig 3 [18].
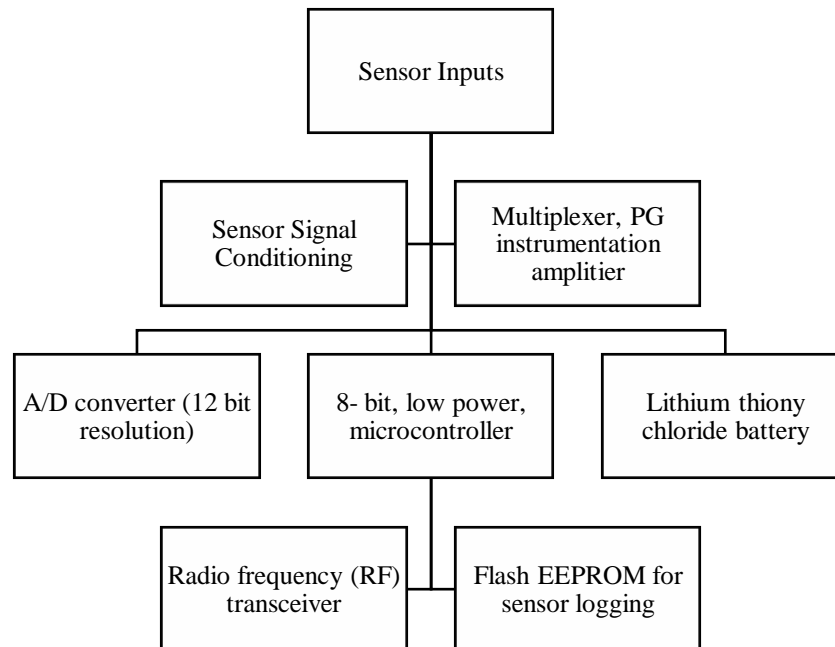

FIGURE 3. Wireless sensor networks

When designing, Communication protocols, for example, are very important to measure performance with the appropriate measurement according to our application, otherwise the protocol will be difficult to analyze and improve. In this paper, we draw up a list of existing criteria and then introduce two new average node percentages and monitored interest point percentages. We also point out the applicability of the application required for each criterion. Wireless sensor networks can be used in a wide variety of environments and without infrastructure. Therefore, the approximate proposed algorithms should be localized algorithms, i.e. the nodes should make decisions based on their local knowledge [19]. Wireless sensor networks are reasonably priced and absolutely disbursed. Perceptions and system answers in situations where conventional networks are impractical. This paper examines layout choices associated with offering dependable statistics transmission via sensor webs. The problem of dependable information switch in sensor webs is multifaceted. The emphasis on strength savings in detective nets means that bad paths have to not be artificially upgraded via a mechanism inclusive of the MAC layer ARQ at some point of route detection and path selection [20]. In addition to new applications, wireless sensor networks provide a possible opportunity to many present technologies. For example, massive buildings have masses of environmental sensors, they are integrated with the relevant air conditioning and air flow gadget. Significant wiring prices manage the complexity of modern environmental regulations and the shape of these systems. However, changing difficult-stressed out tracking devices with temporary wireless sensor nodes can improve the first-class and strength performance of the environment whilst permitting limitless reconfiguration and customization in the destiny. In many cases, handiest the wiring expenses that justify the use of Wi-Fi sensor nodes [21]. Wireless Sensor Networks A WSN is defined as a network of devices that senses the environment and transmits information collected from the field monitored by wireless connections (e.g. area or block). Many hops can be used internally for a single sync (sometimes controller or monitor) Referred to as) or connected to other networks (e.g. Internet) through the gateway. The ends are fixed or moving. Whether or not they know their location. They may or may not be identical [22]. Application of operating systems, microcontrollers and hardware components for wi-fi sensor networks which includes Tenos, SOS, Mantis and Contiki Reduce their electricity intake with the aid of running when not in use. Our work is perpendicular to this; of devices as opposed to trying to reduce energy

consumption Online Power Rating estimates real electricity intake. Use the linear model for online estimation for tip-degree strength intake, however do no longer evaluate the performance of the mechanism. Also, all programs have to have their version explicitly rewritten to evaluate their own electricity consumption. Conversely, our model does now not require any adjustments in programs or community protocols [23]. Sensor. Activation at low pH may result in loss of bipolar cation binding capacity, with NMR spectra accumulating at pH 5.5 with bivalve cation and without. Observed The peak changes indicate that the protein at this pH is still capable of binding to the metal. Even in the presence of low pH it appears to be capable of modifying specific compatibility. In fact, the spectrum stored in acidic pH, tendon, divalent cation or unique compared to the spectrum collected without camp. The corresponding amino acid moves between different stages Peak expansion occurs when capable [24].

5. Distributed Sensor Networks

Distributed sensor networks (DSNs) Sensor technology and Powered by the latest advances in computer networking has become an important part of research. Books by the International Society of Information Fusion (ISIF), Maintains a comprehensive list revised books, journals, and related publications, including conference / workshop / symposium activities, specialty journals and sections. Although the implementation of DSNs is economically feasible, many technological challenges Today's increasingly complex data collection tasks must be overcome before using DSNs. Environmental monitoring, Various including visual restoration, Motion tracking, motion detection, battle tracking, remote sensing and global awareness [25]. These missions include civilian and military applications. They are usually time sensitive and covers a large geographical area. Reliable distribution of more accurate information to complete them Military and in civil proceedings Distributed due to its wide range of applications Sensor networks recently Have received much attention. Target tracking in examples of applications, in scientific research and hazardous environments Includes data recovery. generally smaller, less expensive, battery-powered, and control more resources. They usually communicate with each other wirelessly connections [26]. Violates conventional control assumptions Distributed systems. SN is used and collaborates with a group of followers. Tracking in this application, in the areas of control design, safety and strength there are many interesting research issues. For PEG, the SN must be capable of tracking multiple vehicles. This distinguishes them from followers and evaders. Also, the network must to provide information to followers in the shortest possible time, has a dynamic routing structure. The game is played in a distributed style, Sensitivity, control and movement distributed during the controller design must be calculated. Provide network security features to prevent the intruder group from intercepting sensitive information. [27]. Distributed Using sensor and micro-sensor era, WSNs are expected to put in force a number of packages for perceiving and controlling the bodily global for industrial and army functions. Applications Environmental control (e.g., soil pollution monitoring, habitat monitoring), warehouse and health care at one stop of the spectrum, on the alternative Scientific and army programs have gone through a revolution in current years, mainly given that the start of this decade. WSN studies; The tendencies that emerge from this studies promise to have a large Nationwide security, Health care, Environments, strength, Food security and Impact on a wide variety of manufacturing-related applications [28]. In traditional allotted security, you well known priorities with the aid of contacting the trusted authority answerable for preserving updated records on what each major has access rights. However, inside the occasion of a disaster response, get admission to external electricity may be not possible because of a loss Pre-existing infrastructure or Inability to talk to off-site organizations. In balance-threatening situations, it is in no way proper to disclaim proper person statistics that could store one's existence. In such conditions, a better effort safety version can be suitable, whilst communicating with outdoor authorities Provides robust ensures and vulnerable ensures in instances of bad connectivity or infrastructure loss [29]. Although the data integration module is referred to as a distributed system, it is more than a set of independent nodes We feel overall. This phenomenon is called transparency and is the "concealment" Corresponding to the nodes in the distributed system. Different impulses of distributed systems and There are different forms of transparency that reflect goals [30].

6. Conclusion

Early sensor network views expected that sensor networks would generally have identical devices in terms of hardware and software. Some programs, such as amorphous computing, assume that the sensor nodes are indistinguishable, that is, that their hardware does not even have personal addresses or IDs. This view is based on the observation that it would not be possible to produce large quantities of sensor nodes cheaply. However, among the many prototype systems available today, sensor networks have many different devices. Wireless sensor networks medical applications are aimed at improving existing health and monitoring services, Especially for the elderly, For children and the chronically ill. Thus there are many benefits that companies can achieve. To begin with, remote monitoring capability is important advantage of a wide range of health systems. With remote monitoring, it will be easier to identify emergencies for at-risk patients, and will enable people with a wide range very independent and cognitive and to achieve easy life Physical disabilities. Children and kids' way are most safely cared for when their parents are not around. Routing algorithm design, Performance analysis, Energy efficiency query processing and in wireless sensor networks and temporary networks Includes network modeling. In wireless sensor networks Higher Data capacity is an important design objective. In standard synchronization models, Performance of MAC and routing algorithms The secondary is significant. To increase data capacity, Network Deployment is the most influential parameter, such as node position and node power distribution. Distributed Sensor Networks (DSNs) Recent research, sensor technology and of advances in computer networking has become an important part. Books by the International Society of

Information fusion (ISIF), Compiled books, magazines, including related publications Maintains a comprehensive list. conference / workshop / symposium activities, specialty journals and sections. Although the implementation of DSNs is economically feasible, many technological challenges Today's increasingly complex data collection tasks must be overcome before using DSNs. These missions cover a variety of Environmental monitoring, visual reconstruction, operation Surveillance, motion detection, war surveillance, remote Awareness and global awareness Including civilian and military applications.

References

[1]. Romer, Kay, and FriedemannMattern. "The design space of wireless sensor networks." IEEE wireless communications 11, no. 6 (2004): 54-61.

[2]. Xu, Ning, SumitRangwala, Krishna Kant Chintalapudi, Deepak Ganesan, Alan Broad, Ramesh Govindan, and Deborah Estrin. "A wireless sensor network for structural monitoring." In Proceedings of the 2nd international conference on Embedded networked sensor systems, pp. 13-24. 2004.

[3]. Sridhar, Chethana, Piyush Kumar Pareek, R. Kalidoss, Sajjad Shaukat Jamal, Prashant Kumar Shukla, and Stephen Jeswinde Nuagah. "Optimal medical image size reduction model creation using recurrent neural network and GenPSOWVQ." Journal of Healthcare Engineering 2022 (2022).

[4]. Mawahib, Sharafeldin & Kaur, Chamandeep. (2022). A Design for the Bandwidth Improvement for the Microstrip Patch Antenna for Wireless Network Sensor. International Journal of Scientific Research in Computer Science Engineering and Information Technology. 9. 396. 10.32628/IJSRSET2293130.

[5]. Arampatzis, Th, John Lygeros, and Stamatis Manesis. "A survey of applications of wireless sensors and wireless sensor networks." In Proceedings of the 2005 IEEE International Symposium on, Mediterrean Conference on Control and Automation Intelligent Control, 2005., pp. 719-724. IEEE, 2005.

[6]. Lorincz, Konrad, David J. Malan, Thaddeus RF Fulford-Jones, Alan Nawoj, Antony Clavel, Victor Shnayder, Geoffrey Mainland, Matt Welsh, and Steve Moulton. "Sensor networks for emergency response: challenges and opportunities." IEEE pervasive Computing 3, no. 4 (2004): 16-23.

[7]. Mitchell, Harvey B. Multi-sensor data fusion: an introduction. Springer Science & Business Media, 2007.

[8]. Sunder Selwyn, T., and R. Kesavan. "Reliability analysis of sub assemblies for wind turbine at high uncertain wind." In Advanced Materials Research, vol. 433, pp. 1121-1125. Trans Tech Publications Ltd, 2012.

[9]. Fegade, Vishal, M. Ramachandran, S. Madhu, C. Vimala, R. Kurinji Malar, and R. Rajeshwari. "A review on basalt fibre reinforced polymeric composite materials." In AIP Conference Proceedings, vol. 2393, no. 1, p. 020172. AIP Publishing LLC, 2022.

[10]. Baronti, Paolo, Prashant Pillai, Vince WC Chook, Stefano Chessa, Alberto Gotta, and Y. Fun Hu. "Wireless sensor networks: A survey on the state of the art and the 802.15. 4 and ZigBee standards." Computer communications 30, no. 7 (2007): 1655-1695.

[11]. Chakraborty, Debarun, and Wendrila Biswas. "Motivating factors in a teacher's research and developmental activities and their impact on effective quality teaching in higher education institutions." Journal of Applied Research in Higher Education (2019).

[12]. Subathra, C., S. Krishnakumari, and S. Bharathivasu. "WOMENS'CONTRIBUTION IN AGRICULTURE AND ALLIED ACTIVITIES." International Journal of Management (IJM) 11, no. 12 (2020).

[13]. Pareek, Piyush Kumar, Chethana Sridhar, R. Kalidoss, Muhammad Aslam, Manish Maheshwari, Prashant Kumar Shukla, and Stephen Jeswinde Nuagah. "IntOPMICM: Intelligent Medical Image Size Reduction Model." Journal of Healthcare Engineering 2022 (2022).

[14]. Chandra Prakash, RC. Narayanan, N. Ganesh, M. Ramachandran, S. Chinnasami, R. Rajeshwari. "A study on image processing with data analysis. "In AIP Conference Proceedings, vol. 2393, no. 1, p. 020225. AIP Publishing LLC, 2022.

[15]. Ji, Xiang, and HongyuanZha. "Sensor positioning in wireless ad-hoc sensor networks using multidimensional scaling." In IEEE INFOCOM 2004, vol. 4, pp. 2652-2661. IEEE, 2004.

[16]. Chopra, Pooja & Gollamandala, Vijay & Ahmed, Ahmed & Bala Gangadhara Tilak Babu, Sayila & Kaur, Chamandeep & Prasad N, Achyutha & Nuagah, Stephen. (2022). Automated Registration of Multiangle SAR Images Using Artificial Intelligence. Mobile Information Systems. 2022. 1-10. 10.1155/2022/4545139.

[17]. Mottola, Luca, and Gian Pietro Picco. "Programming wireless sensor networks: Fundamental concepts and state of the art." ACM Computing Surveys (CSUR) 43, no. 3 (2011): 1-51.

[18]. Jeevitha, R., M. J. Judithaa, T. Sunder Selwyn, and A. P. Srikanth. "Atalantia Monophylla Acted as Eco-Friendly Inhibitor for Mild Steel in 1N HCl Media." Oriental Journal of Chemistry 35, no. 3 (2019): 1073.

[19]. Chatterjee, Shamba, Arunangshu Giri, Wendrila Biswas, and Mukesh Kumar Bauri. "Analytical study on variation of healthcare status in Haldia city of West Bengal, India." In Contemporary Medical Biotechnology Research for Human Health, pp. 205-214. Academic Press, 2022.

[20]. Ostfeld, Avi, James G. Uber, EladSalomons, Jonathan W. Berry, William E. Hart, Cindy A. Phillips, Jean-Paul Watson et al. "The battle of the water sensor networks (BWSN): A design challenge for engineers and algorithms." Journal of water resources planning and management 134, no. 6 (2008): 556-568.

[21]. Sathiyaraj Chinnasamy; M. Ramachandran; Kurinjimalar Ramu; Manjula Selvam: Sowmiya Soundhraj, "Exploring the Possibility of Urban Agriculture Farn", Agricultural, Biologicals and Food Science, 1(1), (2022):1-8.

[22]. Gokilavani, R., M. Durgarani, and S. Krishnakumari. "Nostalgia Marketing of Tourism and Hospitality in South Asia: Leverage to India." INTERNATIONAL JOURNAL OF SPECIAL EDUCATION 37, no. 3 (2022).

[23]. Pandit, Shraddha, Piyush Kumar Shukla, Akhilesh Tiwari, Prashant Kumar Shukla, Manish Maheshwari, and Rachana Dubey. "Review of video compression techniques based on fractal transform function and swarm intelligence." International Journal of Modern Physics B 34, no. 08 (2020): 2050061.

[24]. Yu, Yang, Loren J. Rittle, Vartika Bhandari, and Jason B. LeBrun. "Supporting concurrent applications in wireless sensor networks." In Proceedings of the 4th international conference on Embedded networked sensor systems, pp. 139-152. 2006.

[25]. Shukla, Prashant Kumar, and Akhilesh Tiwari. "Review on Relay Node Selection for Wireless Network." International Journal of Computer Applications 141, no. 3 (2016).

[26]. Kaur, Chamandeep & Boush, Mawahib & Hassen, Samar & Hakami, Wafaa & Abdalraheem, Mohammed & Galam, Najla & Hadi, Nedaa & Benjeed, Atheer. (2022). Incorporating sentimental analysis into development of a hybrid classification model: A comprehensive study. International Journal of Health Sciences. 6. 1709-1720. 10.53730/ijhs.v6nS1.4924.

[27]. Sathiyaraj Chinnasamy; M. Ramachandran; Sowmiya Soundhraj; Manjula Selvam, "Investigation of Various Cement Productions and Its Characterization", Construction and Engineering Structures, 1(1), (2022):15-22

[28]. Paradiso, Joseph A., Kai-yuh Hsiao, Joshua Strickon, Joshua Lifton, and Ari Adler. "Sensor systems for interactive surfaces." IBM Systems Journal 39, no. 3.4 (2000): 892-914.

[29]. Lee, Jongdeog, KrasimiraKapitanova, and Sang H. Son. "The price of security in wireless sensor networks." Computer Networks 54, no. 17 (2010): 2967-2978.

[30]. Selwyn, T. Sunder, and R. Kesavan. "Availability analysis of wind turbines and its sub assemblies with markov analysis at uncertain wind." Advanced Science Letters 19, no. 8 (2013): 2210-2214.

[31]. Chakraborty, Debarun, Shakti Bodh Bhatnagar, Wendrila Biswas, and Ganesh Dash. "The Subtle Art of Effecting a Four-day Workweek to Drive Performance." Management and Labour Studies (2022): 0258042X221082893.

[32]. Hu, Lingxuan, and David Evans. "Localization for mobile sensor networks." In Proceedings of the 10th annual international conference on Mobile computing and networking, pp. 45-57. 2004.

[33]. Chakraborty, Debarun, and Wendrila Biswas. "Think love, think peace, think harmony: Rethinking on industrial tranquility." Business Perspectives and Research 9, no. 1 (2021): 92-110.

[34]. Krishnakumari, S., C. Subathra, and K. Arul. "A descriptive study on the behavior of students in online classes during COVID-19 pandemic." In AIP Conference Proceedings, vol. 2405, no. 1, p. 030028. AIP Publishing LLC, 2022.

[35]. Qi, Hairong, S. SitharamaIyengar, and KrishnenduChakrabarty. "Distributed sensor networks—a review of recent research." Journal of the Franklin Institute 338, no. 6 (2001): 655-668.

[36]. Liu, Donggang, Peng Ning, and Rongfang Li. "Establishing pairwise keys in distributed sensor networks." ACM Transactions on Information and System Security (TISSEC) 8, no. 1 (2005): 41-77.

[37]. C. Venkateswaran; M. Ramachandran; Vimala Saravanan; Vidhya Prasanth; Soniya Sriram, "Understanding Various Digital Marketing Strategies and Its Implications", Trends in Banking, Accounting and Business, 1(1), (2022): 21-26

[38]. Sinopoli, Bruno, Courtney Sharp, Luca Schenato, Shawn Schaffert, and S. Shankar Sastry. "Distributed control applications within sensor networks." Proceedings of the IEEE 91, no. 8 (2003): 1235-1246.

[39]. Vijay, Gayathri, Elyes Ben Ali Bdira, and Mohamed Ibnkahla. "Cognition in wireless sensor networks: A perspective." IEEE sensors journal 11, no. 3 (2010): 582-592.

[40]. Alemdar, Hande, and CemErsoy. "Wireless sensor networks for healthcare: A survey." Computer networks 54, no. 15 (2010): 2688-2710.

[41]. Shukla, P. K., and P. Shukla. "Patient health monitoring using feed forward neural network with cloud based Internet of things." Journal of Intelligent Systems and Internet of Things 2 (2019): 65-77.

[42]. Chopra, P., Gollamandala, V. S., Ahmed, A. N., Babu, S. B. G., Kaur, C., Achyutha Prasad, N., & Nuagah, S. J. (2022). Automated Registration of Multiangle SAR Images Using Artificial Intelligence. Mobile Information Systems, 2022.

[43]. Gao, Tia, Christopher Pesto, Leo Selavo, Yin Chen, JeongGilKo, JongHyun Lim, Andreas Terzis et al. "Wireless medical sensor networks in emergency response: Implementation and pilot results." In 2008 IEEE Conference on Technologies for Homeland Security, pp. 187-192. IEEE, 2008.

[44]. Selwyn, T. Sunder, and R. Kesavan. "Failure modes and effects analysis system deployment in a wind turbine at high uncertain wind environment." Advanced Science Letters 19, no. 8 (2013): 2166-2169.

[45]. Biswas, Wendrila, and Debarun Chakraborty. "Impact of organisational trust, commitment and team orientation on industrial disputes-an empirical study on selected manufacturing companies of West Bengal." International Journal of Business and Globalisation 30, no. 1 (2022): 26-42.

[46]. R. Dhaneesh; Iswarya V.S; D.R. Pallavi; Ramachandran; Vimala Saravanan, "The Impact of Self-help Groups on the Women Empowerment in Tamil Nadu", Trends in Banking, Accounting and Business, 1(1), (2022): 1-5.

[47]. Malasri, Kriangsiri, and Lan Wang. "Addressing security in medical sensor networks." In Proceedings of the 1st ACM SIGMOBILE international workshop on Systems and networking support for healthcare and assisted living environments, pp. 7-12. 2007.

[48]. Ksibi, Amel, Mohammed Zakariah, Manel Ayadi, Hela Elmannai, Prashant Kumar Shukla, Halifa Awal, and Monia Hamdi. "Improved Analysis of COVID-19 Influenced Pneumonia from the Chest X-Rays Using Fine-Tuned Residual Networks." Computational Intelligence and Neuroscience 2022 (2022).

[49]. Alalmai, Ali, and Dr Gulnaz Fatma. "A., Arun & Aarif, Mohd.(2022). Significance and Challenges of Online Education during and After Covid-19. Türk Fizyoterapi ve Rehabilitasyon Dergisi." Turkish Journal of Physiotherapy and Rehabilitation 32: 6509-6520.

[50]. He, Daojing, Chun Chen, Sammy Chan, Jiajun Bu, and Athanasios V. Vasilakos. "ReTrust: Attack-resistant and lightweight trust management for medical sensor networks." IEEE transactions on information technology in biomedicine 16, no. 4 (2012): 623-632.

[51]. Giri, Arunangshu, Wendrila Biswas, and Jari Salo. "'Buy Luxury': Adapting the SHIFT Framework to Explore the Psychological Facets Enabling Consumers for Sustainable Luxury Consumption." Indian Journal of Marketing 52, no. 6 (2022): 59-66.

[52]. Chakraborty, Debarun, Shakti Bodh Bhatnagar, Wendrila Biswas, and Ajay Kumar Khatua. "What drives people to adopt grocery apps? The moderating role of household size." Business Perspectives and Research (2022): 22785337221091640.

[53]. Gupta, Krishnakumar, Vishal Fegade, Jeevan Kittur, M. Ramachandran, S. Madhu, S. Chinnasami, and M. Amudha. "A review on effect of cooling rate in fiber reinforced polymeric composites." In AIP Conference Proceedings, vol. 2393, no. 1, p. 020106. AIP Publishing LLC, 2022.

[54]. He, Debiao, Neeraj Kumar, Jianhua Chen, Cheng-Chi Lee, Naveen Chilamkurti, and Seng-Soo Yeo. "Robust anonymous authentication protocol for health-care applications using wireless medical sensor networks." Multimedia Systems 21, no. 1 (2015): 49-60.

[55]. S. Chinnadurai; B.R. Benisha; M. Ramachandran; Vimala Saravanan; Vidhya Prasanth, "Case Studies of Architecture and Interior Design Studios", Sustainable Architecture and Building Materials, 1(1), (2022): 8-13.

[56]. Saradhamani, S., and S. Krishnakumari. "IMPACT OF CORONAVIRUS ON EDUCATION: STAY AWAY FROM SCHOOLS AND COLLEGES."

[57]. Saxena, Aumreesh Kumar, Sitesh Kumar Sinha, Piyush Kumar Shukla, Prashant Shukla, Manish Maheshwari, and Ratnesh Kumar Dubey. "Multi Agent Based Intrusion Detection System using Artificial Immune System for Distributed Network." ACM Transactions on Multimedia Computing, Communications, and Applications (TOMM) (2020).

[58]. Kumar, Pardeep, and Hoon-Jae Lee. "Security issues in healthcare applications using wireless medical sensor networks: A survey." sensors 12, no. 1 (2012): 55-91.

[59]. Chakraborty, Debarun, Wendrila Biswas, and Ganesh Dash. "Marching toward "heart work": Connecting in new ways to thrive amidst COVID-19 crisis." Conflict Resolution Quarterly 39, no. 1 (2021): 7-27.

[60]. Patel, Archana, Narayan C. Debnath, and Prashant Kumar Shukla. "SecureOnt: A Security Ontology for Establishing Data Provenance in Semantic Web." Journal of Web Engineering (2022): 1347-1370.

[61]. Fegade, Vishal, Krishnakumar Gupta, M. Ramachandran, S. Madhu, C. Sathiyaraj, R. Kurinji< alar, and M. Amudha. "A study on various fire retardant additives used for fire reinforced polymeric composites." In AIP Conference Proceedings, vol. 2393, no. 1, p. 020107. AIP Publishing LLC, 2022.

[62]. Lian, Jie, KshirasagarNaik, and Gordon B. Agnew. "Data capacity improvement of wireless sensor networks using non-uniform sensor distribution." International Journal of Distributed Sensor Networks 2, no. 2 (2006): 121-145.

[63]. Dietrich, Isabel, and Falko Dressler. "On the lifetime of wireless sensor networks." ACM Transactions on Sensor Networks (TOSN) 5, no. 1 (2009): 1-39.

[64]. Chakraborty, Debarun, and Wendrila Biswas. "Enlivening workplace climate through strategic human resource management initiatives: Unleashing its efficacy." Business Perspectives and Research 9, no. 3 (2021): 427-445.

[65]. Bharti, Santosh Kumar, Rajeev Kumar Gupta, Prashant Kumar Shukla, Wesam Atef Hatamleh, Hussam Tarazi, and Stephen Jeswinde Nuagah. "Multimodal Sarcasm Detection: A Deep Learning Approach." Wireless Communications and Mobile Computing 2022 (2022).

[66]. Stann, Fred, and John Heidemann. "RMST: Reliable data transport in sensor networks." In Proceedings of the First IEEE International Workshop on Sensor Network Protocols and Applications, 2003., pp. 102-112. IEEE, 2003.

[67]. Rani, Preeti, Prem Narayan Singh, Sonia Verma, Nasir Ali, Prashant Kumar Shukla, and Musah Alhassan. "An Implementation of Modified Blowfish Technique with Honey Bee Behavior Optimization for Load Balancing in Cloud System Environment." Wireless Communications and Mobile Computing 2022 (2022).

[68]. Deepa, N., Asmat Parveen, Anjum Khurshid, M. Ramachandran, C. Sathiyaraj, and C. Vimala. "A study on issues and preventive measures taken to control Covid-19." In AIP Conference Proceedings, vol. 2393, no. 1, p. 020226. AIP Publishing LLC, 2022.

[69]. Römer, Kay, Oliver Kasten, and FriedemannMattern. "Middleware challenges for wireless sensor networks." ACM SIGMOBILE Mobile Computing and Communications Review 6, no. 4 (2002): 59-61.

[70]. Buratti, Chiara, Andrea Conti, DavideDardari, and Roberto Verdone. "An overview on wireless sensor networks technology and evolution." Sensors 9, no. 9 (2009): 6869-6896.

[71]. Dunkels, Adam, Fredrik Osterlind, Nicolas Tsiftes, and Zhitao He. "Software-based on-line energy estimation for sensor nodes." In Proceedings of the 4th workshop on Embedded networked sensors, pp. 28-32. 2007.

[72]. Prost, Lynne R., and Samuel I. Miller. "The Salmonellae PhoQ sensor: mechanisms of detection of phagosome signals." Cellular microbiology 10, no. 3 (2008): 576-582.