December 2025 Top 10 Read Article for Wireless & Mobile Networks

International Journal of Wireless & Mobile Networks (IJWMN) - ERA Indexed

ISSN: 0975-3834 [Online] ; 0975-4679 [Print]

https://airccse.org/journal/ijwmn.html

Citations, h-index, i10-index

Citations 6036 h-index 38 i10-index 146

Citation Count-487

A Wireless Sensor Network Air Pollution Monitoring System

Kavi K. Khedo, Rajiv Perseedoss mand Avinash Mungur

Department of Computer Science and Engineering, University of Mauritius, Reduit, Mauritius

ABSTRACT

Sensor networks are currently an active research area mainly due to the potential of their applications. In this paper we investigate the use of Wireless Sensor Networks (WSN) for air pollution monitoring in Mauritius. With the fast growing industrial activities on the island, the problem of air pollution is becoming a major concern for the health of the population. We proposed an innovative system named Wireless Sensor Network Air Pollution Monitoring System (WAPMS) to monitor air pollution in Mauritius through the use of wireless sensors deployed in huge numbers around the island. The proposed system makes use of an Air Quality Index (AQI) which is presently not available in Mauritius. In order to improve the efficiency of WAPMS, we have designed and implemented a new data aggregation algorithm named Recursive Converging Quartiles (RCQ). The algorithm is used to merge data to eliminate duplicates, filter out invalid readings and summarise them into a simpler form which significantly reduce the amount of data to be transmitted to the sink and thus saving energy. For better power management we used a hierarchical routing protocol in WAPMS and caused the motes to sleep during idle time.

KEYWORDS

Sensor Networks, Routing Protocol, Data Aggregation, Air Pollution Monitoring, Data Fusion

ForMoreDetails https://airccse.org/journal/jwmn/0510ijwmn03.pdf

VolumeLink: https://airccse.org/journal/jwmn_current10.html

REFERENCES

[1] H. Karl and A. Willig, Protocols and Architectures for Wireless Sensor Networks, John Wiley and Sons Ltd, The Atrium, Southern Gate, Chichester, West Sussex, England, 2005.

[2] D. Culler, D. Estrin, and M. Srivastava, "Overview of Sensor Networks", IEEE Computer, August 2004.

[3] K. Martinez, J. K. Hart, and R. Ong, "Environmental sensor networks", IEEE Computer Journal, Vol. 37 (8), 50-56, August 2004.

[4] A. Mainwaring, D. Culler, J. Polastre, R. Szewczyk, and J. Anderson, "Wireless sensor networks for habitat monitoring", Proceedings of the 1st ACM International workshop on Wireless sensor networks and applications, Atlanta, Georgia, USA, 88-97, 2002.

[5] I. F. Akyildiz, D. Pompili and T. Melodia, "Underwater acoustic sensor networks: research challenges", Ad Hoc Networks, Vol. 3 (3), 257-279, May 2005.

[6] Y. Ma, M. Richards, M. Ghanem, Y. Guo and J. Hassard, "Air Pollution Monitoring and Mining Based on Sensor Grid in London", Sensors 2008, Vol. 8(6), 3601-3623.

[7] G. Hassard , M. Ghanem , Y. Guo , J. Hassard , M. Osmond , and M. Richards, "Sensor Grids For Air Pollution Monitoring", in the Proceedings of 3rd UK e-Science All Hands Meeting, 2004.

[8] I. Khemapech, I. Duncan, and A. Miller, "A survey of wireless sensor networks technology," in PGNET, In the Proceedings of the 6th Annual Postgraduate Symposium on the Convergence of Telecommunications, Networking & Broadcasting , Liverpool, UK, EPSRC, June 2005.

[9] B. Warneke and K.S.J. Pister, "MEMS for Distributed Wireless Sensor Networks," 9th International Conference on Electronics, Circuits and Systems, Croatia, September 2002.

[10] B. Son, Y. Her, J. Kim, "A design and implementation of forest-fires surveillance system based on wireless sensor networks for South Korea mountains", International Journal of Computer Science and Network Security (IJCSNS), 6, 9, 124–130, 2006.

[11] ALERT, Available from: http://www.alertsystems.org/, Accessed on: 14 August 2009.

[12] T.H. Keitt, D.L. Urban and B.T. Milne, "Detecting critical scales in fragmented landscapes," Conservation Ecology(online), Vol. 1, 1997.

[13] J. Heidemann et al., "Underwater Sensor Networking: Research Challenges and Potential Applications," USC/ISI tech. rep. ISI-TR-2005-603, 2005.

[14] I. F. Akyildiz, W. Su, Y.Sankarasubramaniam, and E. Cayirci, "Wireless Sensor Networks: A Survey", Elservier Computer Networks, Vol.38 (4), pp. 393-422, March 2002.

[15] A. Mainwaring , D. Culler , J. Polastre , R. Szewczyk , J.Anderson, Wireless sensor networks for habitat monitoring, Proceedings of the 1st ACM international workshop on Wireless sensor networks and applications, Atlanta, Georgia, USA, September 2002.

[16] DeerNet, Available from: http://blog.xbow.com/xblog/2007/10/deernet---caugh.html, Date Accessed: 27 August 2009.

[17] R. Rajagopalan and P.K. Varshney, "Data-Aggregation Techniques in Sensor Networks: A Survey," IEEE Communication Surveys and Tutorials, Vol. 8 (4), pp. 48-63, December 2006.

[18] H. Albert, R. Kravets and I. Gupta, “Building Trees Based On Aggregation Efficiency in Sensor Networks,” Ad Hoc Networks, Vol. 5 (8), pp. 1317-1328, November 2007.

[19] O. Younis and S. Fahmy, "Distributed Clustering in Ad-hoc Sensor Networks: A Hybrid, Energy Efficient Approach", In Proceedings of IEEE INFOCOM, Vol. 1, 629-640, March 2004.

[20] Q. Cao, T. He, L. Fang, T. Abdelzaher, J. Stankovic, and S. Son, “Efficiency Centric Communication Model for Wireless Sensor Networks”, in Proceedings of IEEE INFOCOM, pp. 1-12, 2006.

[21] JiST/SWANS, Java in Simulation Time / Scalable Wireless Ad hoc Network Simulator, Available from: http://jist.ece.cornell.edu/index.html, Cornell University.

[22] D. Johnson, D. Maltz, and J. Broch, “DSR: The Dynamic Source Routing Protocol for Multi-Hop Wireless Ad Hoc Networks”, In Ad Hoc Networking, Chapter 5, 139-172, Addison-Wesley, 2001

CitationCount-361

APPLICATION OF WIRELESS SENSOR NETWORKS FOR GREENHOUSE PARAMETER CONTROL IN PRECISION AGRICULTURE

D.D.Chaudhary[1] , S.P.Nayse[2] , L.M.Waghmare[3]
1 Sinhgad Institute of Technology, Lonavala, Dist. Pune. MS. India.
2 Ph.D. Scholar, Sant Gadgebaba University of Amravati. MS. India
3 Shri Guru Govind Singh Institute of Technology, Nanded. MS. India.

ABSTRACT

The technological development in Wireless Sensor Networks made it possible to use in monitoring and control of greenhouse parameter in precision agriculture. In last decades there have been tremendous advancements in technology for agriculture and growth of final yield. Due to uneven natural distribution of rain water it is very crucial for farmers to monitor and control the equal distribution of water to all crops in the whole farm or as per the requirement of the crop. There is no ideal irrigation method available which may be suitable for all weather conditions, soil structure and variety of crops cultures. Green house technology may be the best solution for this solution. All the parameters of greenhouse require a detailed analysis in order to choose the correct method. It is observed that farmers have to bear huge financial loss because of wrong prediction of weather and incorrect irrigation method to crops. In this contest with the evolution in wireless sensor technologies and miniaturized sensor devices, it is possible to uses them for automatic environment monitoring and controlling the parameters of greenhouse, for Precision Agriculture (PA) application. In this paper, we have proposed and analyse the use of Programmable System on Chip Technology (PSoC) as a part of Wireless Sensor Networks (WSN) to monitor and control various parameter of green house.

KEYWORDS

Greenhouse, Precision Agriculture, Programmable system on chip, Wireless sensor networks

For More Details: https://airccse.org/journal/jwmn/0211ijwmn13.pdf

Volume Link: https://airccse.org/journal/jwmn_current11.html

REFERENCES

[1] J. Burrell et al. Vineyard computing: sensor networks in agricultural production. IEEE Pervasive Computing, 3(1):38–45, Jan-Mar 2004.

[2] Blackmore, S. (1994). ―Precision Farming: An Introduction. Outlook on Agriculture‖ 23(4) 4, 275-280.

[3] Ning Wang, Naiqian Zhang, Maohua Wang, ―Wireless sensors in agriculture and food Industry —Recent development and future perspective, published in Computers and Electronics in Agriculture 50 (2006) 1–14.

[4] R. Beckwith, D. Teibel, and P. Bowen, "Unwired wine: sensor networks in vineyards," 2004, pp. 561- 564.

[5] A. Baggio, "Wireless Sensor Networks in Precision Agriculture," 2005

[6] I. F., Su, W., Sankarasubramaniam, Y., & Cayirci, E. (2002). ―Wireless sensor networks: a survey on Computer Networks, 38, 393-422.

[7] Guide et al. Automatic data acquisition and control mobile laboratory network for crop production systems data management and spatial variability studies in the Brazilian Centre-West region. ASAE 2001 Annual International Meeting. Paper No. 01-1046, pp. 1-8.

[8] Lee et al. Silage yield monitoring system. ASAE 2002, Paper No.021165.

[9] Ning Wang, Naiqian Zhang, Maohua Wang," Wireless sensors in agriculture and food industry—Recent development and future perspective' http://www.ecaa.ntu.edu.tw

[10] Cugati et al. 2003. Automation concepts for the variable-rate fertilizer applicator tree farming. The Proceedings of the 4th European Conference in Precision Agriculture, Berlin, Germany.

[11] K. Mayer, K. Taylor, and K. Ellis. Cattle health monitoring using wireless sensor networks. In Second IASTED International Conference on Communication and Computer Networks, Cambridge, Massachusetts, USA, Nov. 2004.

[12] T. Schoellhammer, B. Greenstein, E. Osterweil, M. Wimbrow, and D. Estrin. Lightweight Networked Sensors (EmNetS-I), Tampa, Florida, USA, Nov. 2004.

[13] J. Thelen et al. Radio wave propagation in potato fields. In First workshop on Wireless Network Measurements (located with WiOpt 2005), Riva del Garda, Italy, Apr. 2005.

[14] W. Zhang, G. Kantor, and S. Singh Integrated wireless sensor/actuator networks in agricultural applications. In Second ACM International Conference on Embedded Networked Sensor Systems (SenSys), page 317, Baltimore, Maryland, USA, Nov. 2004.

[15] Rodríguez, F. Modeling and hierarchical control of greenhouse crop production (in Spanish). PhD thesis, University of Almería, Spain, 2002. International Journal of Wireless & Mobile Networks (IJWMN) Vol. 3, No. 1, February 2011 149

[16] http://www.cypress.com.

[17] http://internetjournals.net

CitationCount-207

ANALYSIS OF CELL PHONE USAGE USING CORRELATION TECHNIQUES

DR. T S R M1, D. SIVA RAMA K 2

1Professor,Shri Vishnu Engg. College for Women,Bhimavaram. West Godavari dist,A.P,India
2Asst. professor,Swarnandhra Institute of Engg. & Tech.,Narsapuram. West Godavari dist,A.P,India

ABSTRACT

The present paper is a sample survey analysis, examined based on correlation techniques. The usage of mobile phones is clearly almost un-avoidable these days and as such the authors have made a systematic survey through a well prepared questionnaire on making use of mobile phones to the maximum extent. These samples are various economical groups across a population of over one-lakh people. The results are scientifically categorized and interpreted to match the ground reality.

KEYWORDS

Correlation coefficient, Coefficient of Determination, Probable Error, Standard Error of Correlation coefficient.

ForMore Details: https://airccse.org/journal/jwmn/0411wmn08.pdf

Volume Link: https://airccse.org/journal/jwmn_current11.html

REFERENCES

[1] Gangadhar B.Sonar and Santosh M.Jainapur(2006)-“Impact of Mobile Phone usage on academic Environment:A Study from Management Perspective”.(Vol.2No.3 Oct 2006 Issue of Journal of Global Economy, Mumbai).
[2] Fraunholz B and unnithan C (2004) critical success factors in mobile communication:A comparative roadmap for germony and india international journal of mobile communication,Vol.2.,No.1.pp.87-101
[3] Merisavo M,Vesanen J, Arpponen Aet al (2006),”The Effectiveness of Targeted Mobile Advertising in Selling Mobile Services: An Empirical Study International Journel of Mobile Communications,Vol-4,No.2,PP.119-127.
[4] Singh Fulbag and Sharma Reema(2007),”Cellular Services and Consumer Buying Behaviour in Amritsar City ,The IUP Journel of Consumer Behaviour ,Vol.2,No.3,PP.39-51.
[5] D. Estrin, R. Govindan, J. Heidemann, and S. Kumar, "Next century challenges: Scalable coordination in sensor networks", in Proceedings of ACM Mobicom, Seattle, Washington, USA, August 1999, pp 263-- 270, ACM.
[6] I.F. Akyildiz, W. Su, Y. Sankarasubramaniam and E. Cayirci, "A Survey on Sensor Networks", IEEE Communications Magazine, pp. 102--114, August 2002.
[7] D. Estrin, L. Girod, G. Pottie, M. Srivastava, “Instrumenting the world with wireless sensor networks”, In Proceedings of the International Conference on Acoustics, Speech and Signal Processing (ICASSP 2001.
[8] L. M. S. D. Souza, H. Vogt and M. Beigl, “A survey on fault tolerance in wireless sensor networks”,2007.
[9] T.N. Srivastava, Shailaja Rego “ Statistics for Management” – Tata Mc Graw-Hill
[10] Barry Render, Ralph M. Stair, JR, Michael. E. Hanna “ Quantitative analysis for Management –

Pearson education, 9th edition.

CitationCount-163

PRACTICAL PARTIAL DECODE AND FORWARD ENCODING SCHEME FOR RELAY CHANNEL

Zouhair Al-qudah

Communication Engineering Department, Al-Hussein bin Talal University, Ma'an, Jordan.

ABSTRACT

In this paper, a source-destination pair, which is augmented by a half-duplex relay, is considered. Two practical partial decode and forward encoding schemes are proposed. In these transmission schemes, the relay may decode the source's signal either partially or completely. In each encoding technique, two- phase transmission scheme is developed in which the relay can partially listen to the source in the first phase until it can generate the source's message and then, in the second phase, forward it to its destination. By employing these transmission phases, the achievable rates are obtained . Rigorous numerical examples are presented to i) show the value of power allocation between the source and the relay, and ii) optimize the length of the listening phase.

KEYWORDS

Relay Channel, Power Allocation, Partial Decode and Forward.

ForMore Details: https://aircconline.com/ijwmn/V8N4/8416ijwmn05.pdf

Volume Link: https://airccse.org/journal/jwmn_current16.html

REFERENCES

[1] T. Cover and A. Gamal, "Capacity theorems for the relay channel," IEEE Trans. Inf. Theory, vol. 25, pp. 572 – 584, Sep. 1979.

[2] A. Gamal and M. Aref, "The capacity of the semi-deterministic relay channel (Corresp.)," IEEE Trans. Inf. Theory, vol. 28, pp. 536–536, May 1982.

[3] G. Kramer, M. Gastpar, and P. Gupta, "Cooperative Strategies and Capacity Theorems for Relay Networks," IEEE Trans. Inf. Theory, vol. 51, pp. 3037 – 3063, Sep. 2005.

[4] C.-P. Lee and H.-J. Su, "Dynamic Decode and Forward for the Multi-Access Relay Channel with Finite Block Length," in IEEE Int. Symp. Personal Indoor and Mobile Radio Communications (PIMRC), pp. 1825–1829, Sep. 2011.

[5] L. Wei and W. Chen, "Efficient Compute-and-Forward Network Codes Search for Two-Way Relay Channel," IEEE Commun. Lett.,, vol. 16, pp. 1204–1207, Aug. 2012.

[6] P. Zhong and M. Vu, "Partial decode-forward coding schemes for the Gaussian two-way relay channel," in Int. Conference on Communications (ICC),, pp. 2451–2456, Jun. 2012.

[7] A. El Gamal and S. Zahedi, "Capacity of a class of relay channels with orthogonal components," IEEE Trans. Inf. Theory, vol. 51, pp. 1815–1817, May 2005.

[8] O. Sahin, O. Simeone, and E. Erkip, "Gaussian Interference Channel Aided by a Relay with Out-of-Band Reception and In-Band Transmission," IEEE Trans. Commun., vol. 59, pp. 2976–2981, Nov. 2011.

[9] T. Pham, H. Nguyen, and H. Tuan, "Power Allocation in Orthogonal Wireless Relay Networks With Partial Channel State Information," IEEE Trans. Signal Process., vol. 58, pp. 869–878, Feb 2010.

[10] B. Rankov and A. Wittneben, "Spectral efficient protocols for half-duplex fading relay channels," IEEE J. Sel. Areas in Commun., vol. 25, pp. 379–389, Feb. 2007.

[11] F. Parzysz, M. Vu, and F. Gagnon, "A half-duplex relay coding scheme optimized for energy

CitationCount-162

IOT-BASED ACTIVITY RECOGNITION WITH MACHINE LEARNING FROMSMARTWATCH

Nassim Mozaffaric, Javad Rezazadeha,c, Reza Farahbakhshb, John Ayoadea

aKent Institute Australia, Sydney, Australia
bInstitut Mines-Te´le´com, Te´le´com SudParis
cIslamic Azad University, North Tehran Branch

ABSTRACT

Human activity recognition(HAR) with wearable Internet of Things (IoT) sensors can be beneficial for the elderly and patients monitoring. Smartwatches are the most accessible IoT devices that play an important role in human activity monitoring. The structure of an activity recognition system involves a platform that holds wearable sensors. Under the background, many platforms such as distributed sensors and smartphones and the combination of them have been investigated but platforms are still one of the main research challenges. Smartwatches can be more comfortable for the elderly and patients, therefore our research is focused on a smartwatch as an emerging IoT platform and machine learning method. The smartwatch attached to arm as the main position then was compared to other positions. We considered machine learning methods to present the smartwatch as a reliable platform in order to recognize activities, also we considered k-nearest neighbor and decision tree as two popular machine learning methods for activity recognition. We evaluated the performance with the confusion matrix and then we used accuracy and f1-score metrics for the result of our experiment. The metrics show accuracy and f1-score almost 99% as the performance of smartwatch on arm position.

KEYWORDS

Activity Recognition, SmartWatch, Machine Learning

ForMore Details: https://aircconline.com/ijwmn/V12N1/12120ijwmn03.pdf

Volume Link: https://airccse.org/journal/jwmn_current20.html

REFERENCES

[1] S. Abbasian Dehkordi, K. Farajzadeh, J. Rezazadeh, R. Farahbakhsh, K. Sandrasegaran, M. Abbasian Dehkordi, A survey on data aggregation techniques in iot sensor networks, Wireless Networks.

[2] J. Rezazadeh, K. Sandrasegaran, X. Kong, A location-based smart shopping system with iot technology, in: 2018 IEEE 4th World Forum on Internet of Things (WF-IoT), 2018, pp. 748–753.

[3] J. Rezazadeh, R. Subramanian, K. Sandrasegaran, X. Kong, M. Moradi, F. Khodamoradi, Novel ibeacon placement for indoor positioning in iot, IEEE Sensors Journal 18 (24) (2018) 10240–10247.

[4] M. Sattarian, J. Rezazadeh, R. Farahbakhsh, A. Bagheri, Indoor navigation systems based on data mining techniques in internet of things: a survey, Wireless Networks.

[5] J. Rezazadeh, M. Moradi, K. Sandrasegaran, R. Farahbakhsh, Transmission power adjustment scheme for mobile beacon-assisted sensor localization, IEEE Transactions on Industrial Informatics 15 (5) (2019) 2859–2869.

[6] B. Lashkari, J. Rezazadeh, R. Farahbakhsh, K. Sandrasegaran, Crowdsourcing and sensing for indoor localization in iot: A review, IEEE Sensors Journal 19 (7) (2019) 2408–2434.

[7] N. Mozaffari, J. Rezazadeh, R. Farahbakhsh, S. Yazdani, K. Sandrasegaran, Practical fall detection based on iot technologies: A survey,Internet of Things (2019) 100124.

[8] A. Weiss, T. Herman, A. Mirelman, S. S. Shiratzky, N. Giladi, L. L. Barnes, D. A. Bennett, A. S. Buchman, J. M. Hausdorff, The transition between turning and sitting in patients with parkinson's disease: A wearable device detects an unexpected sequence of events, Gait & posture 67 (2019) 224– 229.

[9] A. Rajavenkatanarayanan, V. Kanal, K. Tsiakas, D. Calderon, M. Papakostas, M. Abujelala, M. Galib,
J. C. Ford, G. Wylie, F. Makedon, A survey of assistive technologies for assessment and rehabilitation of motor impairments in multiple sclerosis, Multimodal Technologies and Interaction 3 (1) (2019) 6.

[10] R. Wallace, C. Abbott, C. Gibson-Horn, M. Rantz, M. Skubic, Metrics from in-home sensor data to assess gait change due to weighted vest therapy, Smart Health 3 (2017) 1–19.

[11] G. M. Lunardi, F. Al Machot, V. A. Shekhovtsov, V. Maran, G. M. Machado, A. Machado, H. C. Mayr,
J. P. M. de Oliveira, Iot-based human action prediction and support, Internet of Things 3 (2018) 52–68.

[12] G. Yang, L. Xie, M. Ma¨ntysalo, X. Zhou, Z. Pang, L. Da Xu, S. Kao-Walter, Q. Chen, L.-R. Zheng, A health-iot platform based on the integration of intelligent packaging, unobtrusive bio-sensor, and intelligent medicine box, IEEE transactions on industrial informatics 10 (4) (2014) 2180–2191.

[13] J. Wan, M. A. Al-awlaqi, M. Li, M. O'Grady, X. Gu, J. Wang, N. Cao, Wearable iot enabled real-time health monitoring system, EURASIP Journal on Wireless Communications and Networking 2018 (1) (2018) 298.

[14] M. Cornacchia, K. Ozcan, Y. Zheng, S. Velipasalar, A survey on activity detection and classification using wearable sensors, IEEE Sensors Journal 17 (2) (2017) 386–403.

[15] H. Zhao, Y. Ma, S. Wang, A. Watson, G. Zhou, Mobigesture: Mobility-aware hand gesture recognitionfor healthcare, Smart Health 9 (2018) 129–143.

[16] J. M. Chaquet, E. J. Carmona, A. Ferna´ndez-Caballero, A survey of video datasets for human action and activity recognition, Computer Vision and Image Understanding 117 (6) (2013) 633–659.

[17] D. D. Koo, J. J. Lee, A. Sebastiani, J. Kim, An internet-of-things (iot) system development and implementation for bathroom safety enhance- ment, Procedia Engineering 145 (2016) 396–403.
[18] M. Stikic, D. Larlus, S. Ebert, B. Schiele, Weakly supervised recognition of daily life activities with wearable sensors, IEEE transactions on pattern analysis and machine intelligence 33 (12) (2011) 2521–2537.
[19] R. Adaskevicius, Method for recognition of the physical activity of human being using a wearable accelerometer, Elektronika ir Elektrotech- nika 20 (5) (2014) 127–131.
[20] O. D. Lara, M. A. Labrador, et al., A survey on human activity recognition using wearable sensors., IEEE Communications Surveys and Tutorials 15 (3) (2013) 1192–1209.
[21] M. Shoaib, S. Bosch, O. Incel, H. Scholten, P. Havinga, A survey of online activity recognition using mobile phones, Sensors 15 (1) (2015) 2059–2085.
[22] L. Gao, A. Bourke, J. Nelson, Evaluation of accelerometer based multi-sensor versus single-sensor activity recognition systems, Medical engineering & physics 36 (6) (2014) 779–785.
[23] I. Mandal, S. Happy, D. P. Behera, A. Routray, A framework for human activity recognition based on accelerometer data, in: 2014 5th International Conference-Confluence The Next Generation Information Technology Summit (Confluence), IEEE, 2014, pp. 600–603.
[24] G. A. Koshmak, M. Linden, A. Loutfi, Evaluation of the android-based fall detection system with physiological data monitoring, in: 2013 35th Annual International Conference of the IEEE Engineeringin Medicine and Biology Society (EMBC), IEEE, 2013, pp. 1164–1168.
[25] Z. He, L. Jin, Activity recognition from acceleration data based on discrete consine transform and svm, in: 2009 IEEE International Confer- ence on Systems, Man and Cybernetics, IEEE, 2009, pp. 5041– 5044.
[26] F. Lin, C. Song, X. Xu, L. Cavuoto, W. Xu, Patient handling activity recognition through pressure-mapmanifold learning using a footwear sensor, Smart Health 1 (2017) 77–92.
[27] J. Cui, J. Chen, G. Qu, J. Starkman, X. Zeng, E. Madigan, M. Pekarek, W. Xu, M.-C. Huang, Wearable gait lab system providing quantitative statistical support for human balance tests, Smart Health 3 (2017)27–38.
[28] G. M. Weiss, J. L. Timko, C. M. Gallagher, K. Yoneda, A. J. Schreiber, Smartwatch-based activity recognition: A machine learning approach, in: 2016 IEEE-EMBS International Conference on Biomedical and Health Informatics (BHI), IEEE, 2016, pp. 426–429.
[29] W. Wu, S. Dasgupta, E. E. Ramirez, C. Peterson, G. J. Norman, Classification accuracies of physical activities using smartphone motion sensors, Journal of medical Internet research 14 (5).
[30] M. Guo, Z. Wang, N. Yang, Z. Li, T. An, A multisensor multiclassifier hierarchical fusion model based on entropy weight for human activity recognition using wearable inertial sensors, IEEE Transactions onHuman-Machine Systems 49 (1) (2019) 105–111.
[31] J. He, Q. Zhang, L. Wang, L. Pei, Weakly supervised human activity recognition from wearable sensorsby recurrent attention learning, IEEE Sensors Journal 19 (6) (2019) 2287–2297.
[32] A. Stisen, H. Blunck, S. Bhattacharya, T. S. Prentow, M. B. Kjærgaard, A. Dey, T. Sonne, M. M. Jensen, Smart devices are different: Assessingand mitigatingmobile sensing heterogeneities for activity recognition, in: Proceedings of the 13th ACM Conference on Embedded Networked Sensor Systems, ACM, 2015, pp. 127–140.
[33] P. Gupta, T. Dallas, Feature selection and activity recognition system using a single triaxial accelerometer, IEEE Transactions on Biomedical Engineering 61 (6) (2014) 1780–1786.
[34] A. M. Khan, Y.-K. Lee, S. Y. Lee, T.-S. Kim, A triaxial accelerometer-based physical-activity recognition via augmented-signal features and a hierarchical recognizer, IEEE transactions on information technology in biomedicine 14 (5) (2010) 1166–1172.

CitationCount-144

BROWSER GAMES FOR ONLINE COMMUNITIES

Juha-Matti Vanhatupa

Department of Software Systems, Tampere University of Technology, Tampere, Finland

ABSTRACT

Games played directly inside the web browser have many benefits. Browser games do not need software installation. Furthermore since the web has become the ultimate collaboration environment, the games are available for numerous players that can play in collaborative fashion. Through history online communities have birth alongside with browser games. Nowadays online communities have achieved massive user numbers and those can be important part of the browser game itself. This article targets at analyzing and categorizing of browser games. We also discuss financial opportunities relating to browser games and technologies used in those.

KEYWORDS

Browser Games, Game Analysis, Online Communities

For More Details : https://airccse.org/journal/jwmn/0203ijwmn03.pdf

Volume Link : https://airccse.org/journal/jwmn_current10.html

REFERENCES

[1] Facebook Social Utility, http://www.facebook.com/

[2] Travian Browser Game, http://www.travian.com/

[3] Hattrick Browser Game, http://www.hattrick.org/

[4] Vanhatupa Juha-Matti (2010) "Browser Games: The New Frontier of Social Gaming", In Proc of Second International Conference of Wireless & Mobile Networks. CCIS Vol. 84, pp. 349-355, Springer Berlin Heidenberg

[5] Barton Matt, (2008) Dungeons & Desktops, The History of Computer Role Playing Games, A.K. Peters, pp. 37-43.

[6] Earth 2025 Browser Game, http://games.swirve.com/earth

[7] Facebook Statistics, http://www.facebook.com/press/info.php?statistics

[8] Mafia Wars Facebook application, http://www.facebook.com/apps/application.php?id=10979261223

[9] Dogs of the Seas Browser Game, http://www.dogsoftheseas.com/

[10] DarkOrbit Browser Game, http://www.darkorbit.com/

[11] ForumWarz Browser Game, http://www.forumwarz.com/

[12] Stick Arena Browser Game, http://www.xgenstudios.com/play/stickarena

[13] Habbo Hotel Virtual World, http://www.habbo.com/

[14] Hattrick history, http://hattrick.org/Help/History.aspx

[15] Häsel Mathias, (2007) "Rich Internet Architectures for Browser-Based Multiplayer Real-Time Games – Design and Implementation Issues of virtual-kicker.com", In: Enokido, T./Barolli, L./Takizawa, M. (Eds.), Network-Based Information Systems: First International Conference, NBiS 2007. LNCS, vol. 4658, pp. 157-166, Berlin/Heidelberg: Springer-Verlag

[16] Mizanian Kiarash, Vasef Mehdi, Analoui Morteza, (2010) "Bandwidth Modeling and Estimation in Peer to Peer Networks", International Journal of Computer Networks & Communications (IJCNC), Vol. 2, No. 3.

[17] Klemm Alexander, Lindemann Christoph, Waldhorst Oliver P., (2003), "A Special-Purpose Peer-to-Peer File Sharing System for Mobile ad hoc networks", In Proc of Vehicular Technology Conference, VTC2003, IEEE 58th Vol.4, pp. 2758-2763.

[18] Sharma Abhishek, Shi Hao, (2010) "Innovative Rated-Resource Peer-to-Peer Network", International Journal of Computer Networks & Communications (IJCNC), Vol. 2, No. 2.

[19] Foxtrick Hattrick web plugin, http://www.ht-foxtrick.com/forum/portal.php

[20] Facebook Advertising, http://www.facebook.com/advertising/

[21] The Continuum Browser Game, http://www.thecontinuum.com/

[22] Magic: The Gathering collectible card game, http://www.wizards.com/magic/multiverse/default.aspx

[23] Club Penguin Browser Game, http://www.clubpenguin.com/

[24] Walmsley Andrew, Kids' Virtual Worlds are Maturing Nicely, http://www.marketingmagazine.co.uk/news/756021/

[25] Schultheiss Daniel, (2007) "Long-term Motivations to Play MMOGs: A Longitudinal Study on Motivations, Experience and Behavior", In Proc of the DiGRA 2007 - Situated Play,Digital Games Research Association International Conference 2007, 344-348.

[26] Space Merchant Realms Browser Game, http://www.smrealms.de/

[27] Kabus Patrick, Terpstra Wesley, Cilia Mariano, Buchmann, Alejandro, (2005) "Addressing Cheating in Distributed MMOGs", In Proc of the 4th ACM SIGCOMM workshop on Network and system support for games.

CitationCount-110

IMPLEMENTATION OF APPLICATION FOR HUGE DATA FILE TRANSFER

Taner Arsan, Fatih Günay and Elif Kaya

Department of Computer Engineering, Kadir Has University, Istanbul, Turkey

ABSTRACT

Nowadays big data transfers make people's life difficult. During the big data transfer, people waste so much time. Big data pool grows everyday by sharing data. People prefer to keep their backups at the cloud systems rather than their computers. Furthermore considering the safety of cloud systems, people prefer to keep their data at the cloud systems instead of their computers. When backups getting too much size, their data transfer becomes nearly impossible. It is obligated to transfer data with various algorithms for moving data from one place to another. These algorithms constituted for transferring data faster and safer. In this Project, an application has been developed to transfer of the huge files. Test results show its efficiency and success.

KEYWORDS

Network Protocols, Resource Management in Networks, Internet and Web Applications, Network Based Applications.

For More Details : https://airccse.org/journal/jwmn/6414ijwmn03.pdf

Volume Link : https://airccse.org/journal/jwmn_current14.html

REFERENCES

[1] Information Storage and Management Storing, Managing, and Protecting Digital Information Edited by G. Somasundaram Alok Shrivastava, EMC Education Services, 27-29.

[2] The Embedded Internet TCP/IP basics, implementation and applications Edited by Sergio Scaglia , 2007,225-228

[3] Computer Networking A Top-Down Approach Featuring the Internet third edition Edited by James F. Kurose, Keith W. Ross 96-98.

[4] Data Transfer Linda Woodard Consultant Cornell CAC Workshop: Parallel Computing on Stampede: June 18, 2013, 2.

[5] Managed File Transfer Solutions using DataPower and WebSphere MQ File Transfer Edition Edited by IBM,4-5. [6] Computing Community Consortium Version 8 : December 22 , 2008

CitationCount-98

COMPARING VARIOUS CHANNEL ESTIMATION TECHNIQUES FOR OFDM SYSTEMS USING MATLAB

Raghad K. Mohammed

Department of Basic Sciences, College of Dentistry University of Baghdad, Baghdad, Iraq

ABSTRACT

This paper compares the performance of various channel estimation techniques for OFDM systems over quasi-static channels using MATLab. It compares the performance of five channel estimation techniques, these are: decision directed (DD), linear interpolation, second-order interpolation, discrete Fourier transform (DFT) interpolation, minimum mean square error (MMSE) interpolation. The performance is evaluated in terms of two widely-used performance measures, namely, bit-error rate (BER) and the mean square error (MSE) for different levels of signal-to-noise ratio (SNR). The OFDM model is explained and implemented using MATLab to run different simulations. The simulation results demonstrate that the DD channel estimation provides the lowest BER and MSE as compared to interpolation techniques, at the cost of extra processing delay and comparatively sensitive to channel variations between OFDM symbols. Also, the MMSE interpolation outperforms all other interpolation techniques.

KEYWORDS

OFDM, pilot-based channel estimation, pilot allocation, direct decision, interpolation channel estimation, LS, MMSE, MATLab

For More Details : https://aircconline.com/ijwmn/V11N3/11319ijwmn02.pdf

Volume Link : https://airccse.org/journal/jwmn_current19.html

REFERENCES

[1] Henrik Schulze and Christian Luders. Theory and Applications of OFDM and CDMA: Wideband Wireless Communications. John Wiley & Sons, 2006.

[2] Yong Soo Cho, Jaekwon Kim, Won Young Yang, Chung G. Kang. MIMO-OFDM Wireless Communications with MATLAB, John Wiley & Sons, August 2010.

[3] Mathuranathan Viswanathan. Digital Modulations using MATLab: Build Simulation Models from Scratch. E-book, June, 2017.

[4] Srishtansh Pathak and Himanshu Sharma. Channel Estimation in OFDM Systems. International Journal of Advanced Research in Computer Science and Software Engineering (IJARCSSE), Vol.3, No.3, pp. 312-327, 2013.

[5] Elizabeth A. Thompson, Charles McIntosh, James Isaacs, Eric Harmison, Ross Sneary. Robot Communication Link Using 802.11n or 900 MHz OFDM. Journal of Network and Computer Applications (JNCA), Vol. 52, Issue 6, pp. 37-51, June 2015.

[6] Jeffrey G. Andrews, Arunabha Ghosh, and Rias Muhamed. Fundamentals of WiMAX-Understanding Broadband Wireless Networking. Prentice Hall, Second Edition, 2007.

[7] Christopher Cox. An Introduction to LTE: LTE, LTE-Advanced, SAE and 4G Mobile Communications. John-Wiley & Sons, March 2012.

[8] Mehdi Alasti, Behnam Neekzad, Jie Hui, and Rath Vannithamby. Quality of Service in WiMAX and LTE Networks. IEEE Communications Magazine, Vol. 48, Issue 5, May 2010.

[9] Deepak Sharma and Praveen Srivastava. OFDM Simulator Using MATLAB. International Journal of Emerging Technology and Advanced Engineering, Vol. 3, Issue 9, pp. 493-496, September 2013.

[10] S. S. Ghorpade and S. V. Sankpal. Behavior of OFDM System Using MATLAB Simulation. International Journal of Innovative Technology and Research (IJITR), Vol., No. 1, Issue No. 3, pp. 249 – 252, April - May 2013.

[11] S. Sadinov, P. Daneva, and P. Kogias. Description and Simulation of OFDM Reception Process Journal of Engineering Science and Technology Review, Vol. 7, No. 4, pp. 18-22, 2014.

[12] Orlandos Grigoriadis and H. Srikanth Kamath. BER Calculation Using MATLAB Simulation for OGDM Transmission. Proceedings of the International Multi-Conference of Engineers and Computer Scientists (IMECS), Vol II, Hong Kong, 19-21 March 2008.

[13] Kala Praveen Bagadi and Susmita Das. MIMO-OFDM Channel Estimation Using Pilot Carries. International Journal of Computer Applications (0975 – 888 (IJCA), Vol. 2, No. 3, May 2010.

[14] H. Sinha, R. Meshram, and G.R. Sinha. BER Performance Analysis of MIMO-OFDM over Wireless Channel. International Journal of Pure and Applied Mathematics (IJPAM), Vol. 118, No. 5, pp. 195- 206, 2018.

[15] Pratima Manhas and M.K Soni. OFDM Performance Evaluation under Different Fading Channels using

Matlab Simulink. Indonesian Journal of Electrical Engineering and Computer Science, Vol. 5, No. 2, pp. 260-266, 2017.

[16] A. Z. M. Touhidul Islam. A Comparative Performance Study of OFDM System with the Implementation of Comb Pilot-Based MMSE Channel Estimation. International Journal on Computational Sciences & Applications (IJCSA), Vol.3, No.6, pp. 45-53, December 2013.

[17] D. Khosla, S. Singh, R. Singh, and S. Goyal. OFDM Modulation Technique & its Applications: A Review. Proceedings of the International Conference on Innovations in Computing (ICIC 2017), pp. 101-105, 2017.

[18] Fateme Salehi, Mohammad-Hassan Majidi, and Naaser Neda. Channel Estimation Based on Learning Automata for OFDM Systems. International Journal of Communication Systems, Vol. 321, Issue 12, August, 2018.

[19] Navjot Kaur and Neetu Gupta. Simulation and Analysis of OFDM and SC-FDMA with STBC using Different Modulation Techniques. International Journal of Advanced Research in Computer Engineering & Technology (IJARCET), Vol. 4, Issue 11, pp. 4184-4189, November 2015.

[20] Himanshi Jain and Vikas Nandal. A Comparison of Various Channel Estimation Techniques to Improve Fading Effects in MIMO over Different Fading Channels. International Journal of Current Engineering and Technology (IJCET), Vol. 6, No. 4, pp. 1382-1386, 2016.

[21] Kussum Bhagat and Jyoteesh Malhotra. Performance Evaluation of Channel Estimation Techniques in OFDM-based Mobile Wireless System. International Journal of Future Generation Communication and Networking (IJFGCN), Vol. 8, No. 3, pp. 53-60, 2015.

[22] Vishal Sharma and Harleen Kaur. On BER Evaluation of MIMO-OFDM Incorporated Wireless System. International Journal for Light and Electron Optics, Vol. 127, Issue 1, pp. 203-205, January 2016.

[23] N. Kumar and Anuradha. BER Analysis of Conventional and Wavelet Based OFDM in LTE using Different Modulation Techniques. IEEE Engineering and Computational Sciences, March 2014.

[24] M Divya. Bit Error Rate Performance of BPSK Modulation and OFDM-BPSK with Rayleigh Multiple Channel. International Journal of Engineering and Advanced Technology (IJEAT), Vol. 2, Issue 4, April 2013.

[25] Song Wang, Jinli Cao, Jiankun Hu. A Frequency Domain Subspace Blind Channel Estimation Method for Trailing Zero OFDM Systems. Journal of Network and Computer Applications (JNCA), Vol. 34, Issue 1, pp. 116-120, January 2011.

[26] Li Li. Advanced Channel Estimation and Detection Techniques for MIMO and OFDM Systems. PhD Thesis, University of York, UK, 2013.

[27] S. Patil and A. N. Jadhav. Channel Estimation Using LS and MMSE Estimators. KIET International Journal of Communications & Electronics, Vol. 2, No.1, pp. 51-55, April 2014.

[28] Anwar Yousef Al-Tarawneh. An Improved Performance OFDM Channel Estimation Using PilotSymbol-Aided Technique. MSc Thesis, Mutah University, Jordan, 2015.

CitationCount-88

A MODIFIED IEEE 802.15.6 MAC SCHEME TO ENHANCE PERFORMANCE OF WIRELESS BODY AREA NETWORKS IN E-HEALTH APPLICATIONS

Md. Abubakar Siddik1 , Most. AnjuAra Hasi1, JakiaAkter Nitu1, Sumonto Sarker1, Nasrin Sultana1 and Emarn Ali2

1Department of Electronics and Communication Engineering, Hajee Mohammad Danesh Science and Technology University, Dinajpur, Bangladesh
2Department of Computer Science and Engineering, Hajee Mohammad Danesh Science and Technology University, Dinajpur, Bangladesh

ABSTRACT

The recently released IEEE 802.15.6 standard specifies several physical (PHY) layers and medium access control (MAC) layer protocols for variety of medical and non-medical applications of Wireless Body Area Networks (WBAN). Themedical applications of WBAN hasseveral obligatory requirements and constrains viz. high reliability, strict delaydeadlines and low power consumption.The standard IEEE 802.15.6 MAC scheme is not able to fulfil the all requirements of medical applications of WBAN. To address this issue we propose anIEEE 802.15.6-based MAC schemethat is the modification of superframe structure, user priorities and access mechanism of standard IEEE 802.15.6 MAC scheme. The proposed superframe has three access phases: random access phases (RAP), manage access phases (MAP) and contention access phase (CAP). The proposed four user priorities nodes access the channel during RAP using CAMA/CA mechanism with a large value of contention window. The proposed MAC scheme uses RTS/CTS access mechanism instead of basic access mechanism to mitigate the effect of hidden and expose terminal problem. Moreover, we develop an analytical model to evaluate the performance of proposed MAC scheme and solve the analytical model using Maple. The results show that the modified IEEE802.15.6 MAC scheme achieve the better performance in terms of reliability, throughput, average access delay, energy consumption, channel utilization and fairness compared to standard IEEE 802.15.6 MAC scheme in Ehealth applications.

KEYWORDS

Analytical model, CSMA/CA, IEEE 802.15.6, MAC Parameters,Markov chain, Maple, WBAN

ForMore Details:https://aircconline.com/ijwmn/V14N4/14422ijwmn05.pdf

Volume Link: https://airccse.org/journal/jwmn_current22.html

REFERENCES

[1] IEEE 802.15 Working Group, "IEEE 802.15.6-2012 - IEEE Standard for Local and metropolitan area networks - Part 15.6: Wireless Body Area Networks," IEEE Standard Association, pp. 1–271, 2012.

[2] J. C. Wang, M. Leach, Z. Wang, E. G. Lim, K. L. Man, and Y. Huang, "Wireless Body Area Network and its Applications," in 2015 International SoC Design Conference (ISOCC), pp. 169–170, 2015.

[3] R. Negra, I. Jemili, and A. Belghith, "Wireless Body Area Networks: Applications and Technologies," Procedia Computer Science, vol. 83, pp. 1274–1281, 2016.

[4] M. Salayma, A. Al-Dubai, I. Romdhani, and Y. Nasser, "Wireless Body Area Network (WBAN) a Survey on Reliability, Fault Tolerance, and Technologies Coexistence," ACM Computing Surveys (CSUR), vol. 50, no. 1, pp. 1–38, 2017.

[5] S. Movassaghi, M. Abolhasan, J. Lipman, D. Smith, and A. Jamalipour, "Wireless Body Area Networks: A Survey," IEEE Communications surveys & tutorials, vol. 16, no. 3, pp. 1658–1686,2014. International Journal of Wireless & Mobile Networks (IJWMN), Vol. 14, No. 4, August 2022 83

[6] F. Sallabi, F. Naeem, M. Awad, and K. Shuaib, "Managing IoT-Based Smart Healthcare Systems Traffic with Software Defined Networks," in 2018 International Symposium on Networks, Computers and Communications (ISNCC), pp. 1–6, 2018.

[7] R. Huang, Z. Nie, C. Duan, Y. Liu, L. Jia, and L. Wang, "Analysis and Comparison of the IEEE 802.15.4 and 802.15.6 Wireless Standards Based on MAC Layer," in International Conference on Health Information Science, pp. 7–16, 2015.

[8] S. Sarkar, S. Misra, B. Bandyopadhyay, C. Chakraborty, and M. S. Obaidat, "Performance Analysis of IEEE 802.15.6 MAC Protocol Under Non-ideal Channel Conditions and Saturated Traffic Regime," IEEE Transactions on computers, vol. 64, no. 10, pp. 2912–2925, 2015.

[9] S. Rashwand and J. MišI´c, "Effects of access phases lengths on performance of IEEE 802.15.6 CSMA/CA," Computer Networks, vol. 56, no. 12, pp. 2832–2846, 2012.

[10] A. K. Jacob, G. M. Kishore, and L. Jacob, "Lifetime and latency analysis of IEEE 802.15.6 WBAN with interrupted sleep mechanism," S¯adhan¯a, vol. 42, no. 6, pp. 865–878, 2017.

[11] P. Khan, N. Ullah, S. Ullah, and K. S. Kwak, "Analytical Modeling of IEEE 802.15.6 CSMA/CA Protocol under Different Access Periods," in 2014 14th International Symposium on Communications and Information Technologies (ISCIT), pp. 151–155, 2014.

[12] X. Yuan, C. Li, Q. Ye, K. Zhang, N. Cheng, N. Zhang, and X. Shen, "Performance Analysis of IEEE 802.15.6-Based Coexisting Mobile WBANs with Prioritized Traffic and Dynamic Interference," IEEE Transactions on Wireless Communications, vol. 17, no. 8, pp. 5637–5652, 2018.

[13] S. Rashwand, J. Miši´c, and H. Khazaei, "Performance Analysis of IEEE 802.15.6 under Saturation Condition and Error-prone Channel," in 2011 IEEE Wireless Communications and Networking Conference, pp. 1167–1172, 2011.

[14] S. Rashwand, J. Miši´c, and V. B. Miši´c, "Analysis of CSMA/CA mechanism of IEEE 802.15.6 under non-saturation regime," IEEE Transactions on parallel and Distributed Systems, vol. 27, no. 5, pp. 1279–1288, 2015.

[15] M. Barbi, K. Sayrafian, and M. Alasti, "Using RTS/CTS to Enhance the Performance of IEEE 802.15.6 CSMA/CA," in 2016 IEEE 27th Annual International Symposium on Personal, Indoor, and Mobile Radio Communications (PIMRC), pp. 1–5, 2016.

[16] S. Ullah, M. M. Hassan, M. S. Hossain, and A. Alelaiwi, "Performance Evaluation of RTS/CTS Scheme in Beacon-Enabled IEEE 802.15.6 MAC Protocol for Wireless Body Area Networks," Sensors, vol. 20, no. 8, p. 2368, 2020.

[17] M. A. Siddik, S. S. Moni, M. S. Alam, and W. A. Johnson, "SAFE-MAC: Speed Aware Fairness Enabled MAC Protocol for Vehicular Ad-hoc Networks," Sensors, vol. 19, no. 10, pp. 1-28, 2019.

[18] J. Roy, M. A. Siddik, S. S. Moni, and M. S. Alam, "An Efficient Cooperative MAC Protocol for Enhancing QoS of IEEE 802.11e EDCA in Saturated Conditions," in 2016 9th International Conference on Electrical and Computer Engineering (ICECE), pp. 578-581, 2016.

[19] D. Yuan, G. Zheng, H. Ma, J. Shang and J. Li, "An Adaptive MAC Protocol Based on IEEE 802.15.6 for Wireless Body Area Networks," Wireless Communications and Mobile Computing, vol. 2019, pp. 1-9, 2019.

[20] N. Sultana, F. Huq, M. A. Razzaque, and M. M. Rahman, "Prioritized IEEE 802.15.6 MAC Protocol for Wireless Body Area Network," in 2019 International Conference on Sustainable Technologies for

Industry 4.0 (STI), pp. 1-5, 2019.
[21] T. Fukuya and R. Kohno, "QoS-Aware Superframe Management Scheme based on IEEE 802.15.6," in 2016 10th International Symposium on Medical Information and Communication Technology (ISMICT), pp. 1-4, 2016.
[22] "Maple 18, Maplesoft, Inc. Last accessed on April 2018. Waterloo, Canada, [Online]. Available: http://www.maplesoft.com."
[23] M. A. Siddik, J. A. Nitu, N. Islam, M. A. A. Hasi, J. Ferdous, M. M. Rahman, and M. N. Sultan, "Effects of MAC Parameters on the Performance of IEEE 802.11 DCF in NS-3," Journal of Wireless & Mobile Networks (IJWMN), vol. 13, no. 6, pp. 1-20, 2021.
[24] G. Bianchie, "Performance Analysis of the IEEE 802.11 Distributed Coordination Function," IEEE Journal on selected areas in communications, vol. 18, no. 3, pp. 535-547, 2000.
[25] U. Sangeetha, and A. V. Babu, "Fair and efficient resource allocation in IEEE 802.11ah WLAN with heterogeneous data rates," Computer Communications, vol. 151, pp. 154-164, 2020.
[26] S. Ullah, E. Tovar, K.-I. Kim, K. H. Kim, and M. Imran, "Performance Analysis of Priority-Based IEEE 802.15.6 Protocol in Saturated Traffic Conditions," IEEE Access, vol. 6, pp. 66198–66209, 2018. International Journal of Wireless & Mobile Networks (IJWMN), Vol. 14, No. 4, August 2022 84
[27] M. A. Siddik, S. S. Moni, and M. S. Alam, "An Efficient MAC Protocol for Provisioning Fairness in Vehicle to Roadside Communications," in 2016 9th International Conference on Electrical and Computer Engineering (ICECE), pp. 475-478, 2016.
[28] N. An, P. Wang, C. Yi, and Y. Li, "Performance Analysis of CSMA/CA based on the IEEE 802.15.6 MAC protocol," in 2013 15th IEEE International Conference on Communication Technology, pp. 539–544, 2013.
[29] B. H. Jung, R. U. Akbar, and D. K. Sung, "Throughput, Energy Consumption, and Energy Efficiency of IEEE 802.15.6 Body Area Network (BAN) MAC Protocol," in 2012 IEEE 23rd international symposium on personal, indoor and mobile radio communications-(PIMRC), pp. 584-589, 2012.
[30] R. K. Jain, D. W. Chiu, and W. R. Hawe, "A Quantitative Measure of Fairness and Discrimination for Resource Allocation in Shared Computer System," Eastern Research Laboratory, Digital Equipment Corporation, Hudson, MA 21, 1984.

CitationCount-83

SIMULATION AND VERIFICATION TWO YAGI-UDI AND S-BAND SATELLITE DISH GROUND STATION ANTENNAS FOR LEO NANOSATELLITES COMMUNICATIONS

Vahid Rastinasab And Victor Hu

[1]Department of Electrical and Information, BIT, Beijing, China
[2]Department of Electrical and Information, BIT, Beijing, China

ABSTRACT

Ground station antennas are a part of TTC system, generally, Yagi-Udi antennas and Parabola dish antenna are using in Earth segment to communicate with LEO small satellites, this paper uniquely presents the three huge antennas of a ground station which are communicating with some microsatellites with view window above Beijing, China. The ground station contains two Yagi-Udi antennas for VHF/UHF and an S-band dish antenna for reception of payloads data. For verification feasibility of the antennas, simulations have been accomplished according to the antennas requirements. Eventually, the simulations assisted to recognize the matched commercial ground station antennas based on comparison of the simulations with commercial antennas and the matched ones are chosen for the implementation on the ground station.

KEYWORDS

Amateur radio antenna, Telemetry and Tracking, Yagi-Udi antenna, parabolic dish antenna, ground station antennas

For More Details :**https://aircconline.com/ijwmn/V11N3/11319ijwmn03.pdf**

Volume Link :**https://airccse.org/journal/jwmn_current19.html**

REFERENCES

[1] Allan C. Schell, "GROUND-BASED ANTENNAS FOR SATELLITE COMMUNICATIONS" ICSSC, Washington, vol. 19, pp. 465-480, May 1966J. Clerk Maxwell, A Treatise on Electricity and Magnetism, 3rd ed., vol. 2. Oxford: Clarendon, 1892, pp.68–73.

[2] Rupesh Lad, Pritesh Chhajed, LokeshsinghBais, Shyam Dahiwal, SukhadaSaoji, Vaibhav Rekhate, Pushkar Chaudhari, Shimoli Shinde, Ketan Chitale, Anjali Mondhe and Shreyas Kulkarni, "design and performance evaluation of two-unit yagi-uda array for UHF satellite communication", IJWMN, Vol. 6, No. 5, October 2014

[3] Octavian CRISTEA, Paul DOLEA, Paul VlăduţDASCĂL, "S-band ground station prototype for lowearth orbit nanosatellite missions", unpublished

[4] Balanis, C. A.,Antenna Theory: Analysis and Design, John Wiley & Sons, 2005.

[5] C.C. Cutler, "Parabolic-Antenna Design for Microwaves", Proc. IRE, Vol. 35, p. 1286, Nov 1947

[6] Paul Wade, "Enhancing the OK1DFC Square Septum FeedWith a Choke Ring", 2007

[7] http://www.radartutorial.eu/06.antennas/Parabolic%20Antenna.en.html

[8] Nafati A. Aboserwal, Constantine A. Balanis, Life Fellow, IEEE, and Craig R. Birtcher, "Conical Horn: Gain and Amplitude Patterns", IEEE TRANSACTIONS ON ANTENNAS AND PROPAGATION, VOL. 61, NO. 7, JULY 2013

[9] http://www.radartutorial.eu/03.linetheory/Horn.en.html

[10] M. Young, The Technical Writer's Handbook. Mill Valley, CA: University Science, 1989.

[11] Rupesh Lad, Pritesh Chhajed, LokeshsinghBais, Shyam Dahiwal, SukhadaSaoji,VaibhavRekhate, Pushkar Chaudhari, Shimoli Shinde, Ketan Chitale, Anjali Mondhe and Shreyas Kulkarni, "DESIGN AND PERFORMANCE EVALUATION OF TWO-UNIT YAGI-UDA ARRAY FOR UHF SATELLITE COMMUNICATION", International Journal of Wireless & Mobile Networks(IJWMN) Vol. 6, No. 5, October 2014

[12] Venkata Kishore.K, Nalini.K ,B.T.P.Madhav, B.V.Raj Gopala Rao, Surendra Kumar.B, Naga Harsha Vardhan.K, "Design and Analysis of 3-Element yagi-uda Antenna for Wind Profiling Radar", B T P Madhav et al, International Journal of Computer Science & Communication Networks,Vol 1(3), 242- 246

[13] P. Ngamjanyaporn, C. Kittiyanpunya and M. Krairiksh, "A switch-beam circular array antenna using pattern reconfigurable Yagi-Uda antenna for space communications", ISAP2017, Phuket, Thailand

[14] Rupesh Lad, Pritesh Chhajed, LokeshsinghBais, Shyam Dahiwal, SukhadaSaoji, Vaibhav Rekhate, Pushkar Chaudhari, Shimoli Shinde, Ketan Chitale, Anjali Mondhe and Shreyas Kulkarni, "DESIGN AND PERFORMANCE EVALUATION OF TWO-UNIT YAGI-UDA ARRAY FOR UHF SATELLITE COMMUNICATION"

[15] Xue-Song Yang, Bing-Zhong Wang, Member, IEEE, Weixia Wu, Member, IEEE, and Shaoqiu Xiao, Member, IEEE, “Yagi Patch Antenna With Dual-Band and Pattern Reconfigurable Characteristics”, IEEE ANTENNAS AND WIRELESS PROPAGATION LETTERS, VOL. 6, 2007

[16] Pedro Cheong, Student Member, IEEE,KeWu, Fellow, IEEE, Wai-Wa Choi, Senior Member, IEEE,and Kam-Weng Tam, Senior Member, IEEE, “Yagi–Uda Antenna for Multiband Radar Applications”, IEEE ANTENNAS AND WIRELESS PROPAGATION LETTERS, VOL. 13, 2014