

## Innovations in Bio-Inspired Computing and Applications



## International Conference on Innovations in Bio-Inspired Computing and Applications

IBICA 2019: [Innovations in Bio-Inspired Computing and Applications](#) pp 352-360 | [Cite as](#)

# **Developing a Multi-modal Listing Service for Real Estate Agency Practice in Nigeria**

- [Authors](#)
- [Authors and affiliations](#)
  
- Adewole Adewumi
- Chukwuemeka Iroham
- Daniel Audu
- Sanjay Misra
- Ravin Ahuja

- Adewole Adewumi
  - 1

[Email author](#)

- Chukwuemeka Iroham
  - 2
- Daniel Audu
  - 2
- Sanjay Misra
  - 2
- Ravin Ahuja
  - 3

1. 1.Algonquin CollegeOttawaCanada
2. 2.Center of ICT/ICE Research, CUCRID BuildingCovenant UniversityOtaNigeria
3. 3.Shri Viswakarma Skill UniversityGurgaonIndia

Conference paper

First Online: 06 August 2020

Part of the [Advances in Intelligent Systems and Computing](#) book series (AISC, volume 1180)

## Abstract

Fraudsters posing as real estate agents threaten the reputation of real estate agencies in Nigeria. These fraudsters have continually defrauded unsuspecting members of the public. The major cause of this lapse is due largely to the fact that there is no known platform provided in the country that allows members of the public to verify a given real estate agent. This paper aims to provide support to real estate agency practice in Nigeria by developing a multi-modal listing service for verifying registered real estate agents and to also provide information on real estates available for sale, lease or rent. The requirements for the system were gathered through observation, literature survey and user survey. These requirements were then modelled using the Unified Modelling Language (UML). The system is developed both as a web and mobile application using an open source content management system (WordPress). This paper essentially presents the: requirements gathering process, design and implementation of the multi-modal listing service as well as how it compares with other similar services developed elsewhere. The multi-modal listing service developed in this study is a welcome development due to the availability and widespread adoption of the Internet and Internet-enabled mobile devices in Nigeria. The tool can be of use to the National Association of Estate Agents in Nigeria - a body saddled with the responsibility of rebranding the real estate agency profession in Nigeria.

## Keywords

Listing service Multi-modal Real estate

This is a preview of subscription content, [log in](#) to check access.

## Notes

### Acknowledgements

We acknowledge the support and sponsorship provided by Covenant University through the Centre for Research, Innovation and Discovery (CUCRID).

## References

1. 1.

Tignor, R.L.: Capitalism and Nationalism at the End of Empire: State and Business in Decolonizing Egypt, Nigeria, and Kenya, 1945-1963. Princeton University Press, Princeton (2015)[Google Scholar](#)

2. 2.

Ibikunle, F., Eweniyi, O.: Approach to cyber security issues in Nigeria: challenges and solution. *Int. J. Cog. Res. Sci. Eng. Educ.* **1**, 100–110 (2013)[Google Scholar](#)

3. 3.

Davenport, T.H.: Process Innovation: Reengineering Work Through Information Technology. Harvard Business Press, Boston (2013)[Google Scholar](#)

4. 4.

Oyebiyi, O., Misra, S., Maskeliunas, R., Damasevicius, R.: Application of ICT by small and medium enterprises in Ogun State, Nigeria. *Commun. Comput. Inf. Sci.* **799**, 459–471 (2018)[Google Scholar](#)

5. 5.

Iroham, C.O., Oloyede, S.A., Ajibola, M.O., Durodola, O.D.: Towards an effective real estate agency education: a stride to efficiency in Nigeria. *Afr. J. Est. Prop. Mgt.* **1**, 177–181 (2014)[Google Scholar](#)

6. 6.

Luersen, H., McKinney, W., Huang, B., Foley, M.: Real estate broker/agent vs. lawyer. *J. Fin. Acc.* **17**, 1 (2014)[Google Scholar](#)

7. 7.

Goodwin, K., Stetelman, S.: Perspectives on technology change and the marketing of real estate. *J. Hous. Res.* **22**, 91–108 (2013)[Google Scholar](#)

8. 8.

Florentino, T., Casaca, J.A., Empresa–Universitário, L.: Real estate brokers in premium segment-marketing and communication through technologies (No. eres2014\_97). European Real Estate Society (ERES) (2014)[Google Scholar](#)

9. 9.

Woody, J.: Peddling by pod: mobile marketing for real estate professionals. *Global Conf. Bus. Finance Proc.* **9**, 8–15 (2014)[Google Scholar](#)

10. 10.

Kaklauskas, A., Gikys, M.: Increasing efficiency of multiple listing service systems applying web-based decision support system for real estate. *J. Civil Eng. Manage.* **11**, 91–97 (2005)[CrossRef](#)[Google Scholar](#)

11. 11.

Yuan, X., Lee, J.H., Kim, S.J., Kim, Y.H.: Toward a user-oriented recommendation system for real estate websites. *Inf. Syst.* **38**, 231–243 (2013)[CrossRef](#)[Google Scholar](#)

12. 12.

Ho, H.P., Chang, C.T., Ku, C.Y.: House selection via the Internet by considering homebuyers' risk attitudes with S-shaped utility functions. *Euro. J. Oper. Res.* **241**, 188–201 (2015)[MathSciNet](#)[CrossRef](#)[Google Scholar](#)

13. 13.

Daly, E.M., Botea, A., Kishimoto, A., Marinescu, R.: Multi-criteria journey aware housing recommender system. In: *Proceedings of the 8th ACM Conference on Recommender systems*, pp. 325–328. ACM (2014)[Google Scholar](#)

14. 14.

Reggio, G., Leotta, M., Ricca, F., Clerissi, D.: What are the used UML diagram constructs? a document and tool analysis study covering activity and use case diagrams. In: Hammoudi, S., Pires, L.F., Filipe, J., das Neves, R.C. (eds.) *MODELSWARD 2014. CCIS*, vol. 506, pp. 66–83. Springer, Cham (2015).[CrossRef](#)[Google Scholar](#)

15. 15.

Al-Fedaghi, S.: Developing web applications. *Int. J. Soft. Eng. Appl.* **5**, 57–68 (2011)[Google Scholar](#)

16. 16.

Ikediashi, D.I., Ogunlana, S.O., Oladokun, M.G., Adewuyi, T.: Assessing the level of commitment and barriers to sustainable facilities management practice: A case of Nigeria. *Intl. J. Sust. Built Env.* **1**, 167–176 (2012)[CrossRefGoogle Scholar](#)

17. 17.

Lepkova, N., Uselis, R.: Development of a quality criteria system for facilities management services in Lithuania. *Procedia Eng.* **57**, 697–706 (2013)[CrossRefGoogle Scholar](#)

18. 18.

Shen, W., Hao, Q., Mak, H., Neelamkavil, J., Xie, H., Dickinson, J., Thomas, R., Pardasani, A., Xue, H.: Systems integration and collaboration in architecture, engineering, construction, and facilities management: a review. *Adv. Eng. Inf.* **24**, 196–207 (2010)[CrossRefGoogle Scholar](#)

19. 19.

Goulden, M., Spence, A.: Caught in the middle: the role of the facilities manager in organisational energy use. *Energy Policy* **85**, 280–287 (2015)[CrossRefGoogle Scholar](#)

20. 20.

Raymond, Y., Webb, J.: The effectiveness of a web strategy for real estate brokerage. *J. Real Est. Lit.* **10**, 119–130 (2002)[Google Scholar](#)

21. 21.

Sunikka, A., Bragge, J.: Analyzing the internet-based changes in the finnish residential real estate market. Case: Igglo. In: *Proceedings of the e-Business Research Frontiers (eBRF) Conference* (2006)[Google Scholar](#)

22. 22.

Salau, A., Yinka-Banjo, C., Misra, S., Ahuja, R., Maskeliunas, R.: Design and implementation of a fault management system. *Adv. Intell. Syst. Comput.* **939**, 495–505 (2019)[Google Scholar](#)

23. 23.

Richardson, H., Zumpano, L.: Further assessment of the efficiency effects of internet use in home search. *J. Real Est. Res.* **34**, 515–548 (2013)[Google Scholar](#)

24. 24.

Kummerow, M., Lun, J.C.: Information and communication technology in the real estate industry: productivity, industry structure and market efficiency. *Telecomm Policy* **29**, 173–190 (2005)[CrossRefGoogle Scholar](#)

25. 25.

Sakalauskas, D.P., Ibeh, K.I.: Internet marketing and the realty sector: some cross-national insights from Canada and the UK. *J. Euromark.* **14**, 53–76 (2005)[CrossRefGoogle Scholar](#)

26. 26.

Loh, F., Paynter, J., Everett, A.: New Zealand real estate agencies in e-commerce environment. In: *The Third International Conference on Electronic Business (ICEB 2003): E-Business Paradigms: Strategic Transformation and Partnership*, Singapore (2003)[Google Scholar](#)

27. 27.

Benjamin, J.D., Chinloy, P.T., Jud, G.D., Winkler, D.T.: Technology and real estate brokerage firm financial performance. *J. Real Estate Res.* **27**, 409–426 (2006)[Google Scholar](#)

28. 28.

Hwa, T.K., Isa, M.: The significance of information technology on real estate agency firm earnings. In: *IEEE Symposium on Business, Engineering and Industrial Applications (ISBEIA)*, pp. 326–329 (2011)[Google Scholar](#)

29. 29.

Koch, D., Maier, G.: The influence of estate agencies' location and time on Internet. *Rev. Reg. Res.* **35**(2), 147–171 (2015).[CrossRefGoogle Scholar](#)

30. 30.

MLS-NIGERIA. <http://mls-nigeria.com/about-us>. Last Accessed on 30 Oct 2019

## Copyright information

© The Editor(s) (if applicable) and The Author(s), under exclusive license to Springer Nature Switzerland AG 2021

## About this paper

[CrossMark](#)

Cite this paper as:

Adewumi A., Iroham C., Audu D., Misra S., Ahuja R. (2021) Developing a Multi-modal Listing Service for Real Estate Agency Practice in Nigeria. In: Abraham A., Panda M., Pradhan S., Garcia-Hernandez L., Ma K. (eds) Innovations in Bio-Inspired Computing and Applications. IBICA 2019. Advances in Intelligent Systems and Computing, vol 1180. Springer, Cham. [https://doi.org/10.1007/978-3-030-49339-4\\_36](https://doi.org/10.1007/978-3-030-49339-4_36)

- First Online 06 August 2020
- DOI [https://doi.org/10.1007/978-3-030-49339-4\\_36](https://doi.org/10.1007/978-3-030-49339-4_36)
- Publisher Name Springer, Cham
- Print ISBN 978-3-030-49338-7
- Online ISBN 978-3-030-49339-4
- eBook Packages [Intelligent Technologies and Robotics](#) [Intelligent Technologies and Robotics \(R0\)](#)
  
- [Buy this book on publisher's site](#)
- [Reprints and Permissions](#)

## Actions

Log in to check access

EUR 160.49

EUR 24.95

[Springer Nature](#)

© 2020 Springer Nature Switzerland AG. Part of [Springer Nature](#).

Not logged in Not affiliated 165.73.223.243