

Instrumental Learning Course using Raspberry PI

Prof. Amol Bhoi, Shailesh Wattamwar, Shivani Gaikwad, Madhuri Kale

Department of E&TC

G H Raisonni Institute of Engineering and Technology, Wagholi, Pune, India

Abstract: *By utilising technology to foster a sense of presence and dynamic dialogue, distance learning has transformed education. With the help of long-lasting memories and engagement, this cutting-edge teaching method seeks to make a significant impression on students. Additionally, it offers timely tracking of students' academic progress records, enabling tailored changes in lesson plans depending on student feedback. However, due to specific equipment requirements, notably with regard to sound quality, some traditional courses, such as learning an instrument, have difficulty converting to distance learning models. The provision of content-based and individualised instruction is hampered by the special needs of instrument learning being unmet by the existing distant learning platforms. This research suggests a concept for online instrument learning courses that uses embedded systems and Internet of Things (IoT) technology in order to overcome this problem. This strategy improves remote learning experiences while simultaneously satisfying hardware needs, which motivates students more.*

Keywords: Plant disease detection, feature extraction, image processing

REFERENCES & BIBLIOGRAPHY

- [1]. Z. Liu, "Vocal Music Education Practice in Colleges and Universities Based on Diversified Culture," in Proceedings of the 2019 3rd International Conference on Economics, Management Engineering and Education Technology (ICEMEET 2019), vol. 2, Singapore, November 2019.
- [2]. B. Chen, H. Kou, B. Hou, and Y. Zhou, "Music Feature Extraction Method Based on Internet of Things Technology and its Application," Computational Intelligence and Neuroscience, vol. 2022, Article ID 8615152, 10 pages, 2022.
- [3]. L. Qi and N. Liu, "Music Singing Based on Computer Analog Piano Accompaniment and Digital Processing for 5G Industrial Internet of Things," Mobile Information Systems, vol. 2022, Article ID 4489301, 10 pages, 2022.
- [4]. 4.T. Guo, "Application of Internet of Things Technology in Vocal Music Teaching Recording Equipment Assisted by Machine Learning," Wireless Communications and Mobile Computing, vol. 2022, Article ID 2091387, 10 pages, 2022.
- [5]. L. Z. Chen, "Exploring the trend and reform of music education and vocal teaching in Wemedia era," DEStech transactions on economics, business and management, vol. 10, 2019.
- [6]. Y. Deng, "e Timbre Relationship between Piano Performance Skills and Piano Combined with Opera Music Elements in the Context of the Internet of Things," Security and Communication Networks, vol. 2022, Article ID 4259995, 14 pages, 2022.
- [7]. B. Chen, H. Kou, B. Hou, and Y. Zhou, "Music Feature Extraction Method Based on Internet of Things Technology and its Application," Computational Intelligence and Neuroscience, vol. 2022, Article ID 8615152, 10 pages, 2022.
- [8]. Z. Wang and J. Zhai, "Ethical challenges faced by students in the educational environment of artificial intelligence," in Proceedings of the 2019 International Conference on Advanced Education Research and Modern Teaching (AERMT 2019), pp. 1–3, Atlantis Press, Jinan, China, September 2019
- [9]. M. Rosenberg and W. D. LeBorgne, /e Vocal Athlete: Application and Technique for the Hybrid Singer, Vol. 157, Plural Publishing, , San Diego, CA , USA, 2019.

- [10]. K. Salvador, “Early childhood music making in educational settings: a comprehensive analysis of peer-reviewed research, 2000-17,” *International Journal of Music in Early Childhood*, vol. 14, no. 1, pp. 35–69, 2019.
- [11]. J. J. Sun, “The Influence of Western Classical Singing Method on the 21st century Chinese National Vocal music/Sun Jing Jing,” Doctoral dissertation, University of Malaya, Kuala Lumpur, Malaysia, vol. 44, 2019.
- [12]. R. D. Raharto and R. Permatasari, “The protagonists shadow and persona as the reflection of antihero in the Phantom of the Opera novel retold by Diane Namm,” *EduLite: Journal of English Education, Literature and Culture*, vol. 4, no. 1, pp. 65–75, 2019.
- [13]. J. Ma, “The challenge and development of vocational education under the background of artificial intelligence,” in *Proceedings of the 5th International Conference on Humanities and Social Science Research (ICHSSR 2019)*, vol. 319, Dalian, China, June 2019.
- [14]. Y. Deng, “The Timbre Relationship between Piano Performance Skills and Piano Combined with Opera Music Elements in the Context of the Internet of Things,” *Security and Communication Networks*, vol. 2022, Article ID 4259995, 14 pages, 2022.