AI-Based Telemedicine Kiosk for Rural HealthCare Transformation

Jayalakshmi L[1], Saniya G T[2], Vaishnavi R[3], Tanuja[4],

[1]*Student, Information Science and Technology, R R Institute of Technology*

[2]*Student, Information Science and Technology, R R Institute of Technology*

[3]*Student, Information Science and Technology, R R Institute of Technology*

[4]*Assistant Professor, Information Science and Technology, R R Institute of Technology*

---***---

Abstract - Access to healthcare services in rural areas has long been a challenge, with limited resources and healthcare facilities often leaving residents underserved. The advent of telemedicine has brought about a promising solution, bridging the gap between rural communities and healthcare providers. This Project presents a novel approach to enhancing telemedicine services in rural areas through the deployment of AI-powered Telemedicine Kiosks. These kiosks are designed to provide convenient and comprehensive healthcare access to remote communities, empowering patients to receive timely medical consultations, diagnostics, and health information. Furthermore, these kiosks have the capability to dispense medicines based on patients' symptoms, further enhancing convenience and accessibility to essential medications.

Key Words: Artificial intelligence (AI) ,Telemedicine , Rural healthcare, Medical consultations, Human-AI cooperation, Health outcomes

1. INTRODUCTION

Access to quality healthcare services in rural areas has long been a challenge, perpetuating disparities in healthcare outcomes between urban and rural populations. Limited resources, inadequate infrastructure, and a shortage of healthcare professionals often leave residents in remote regions underserved and facing significant barriers to receiving timely medical care. The advent of telemedicine has emerged as a promising solution, offering a means to bridge the geographical gap between rural communities and healthcare providers. This project aims to introduce and explore a novel approach to enhance telemedicine services in rural areas through the deployment of AI-powered Telemedicine Kiosks.

Artificial intelligence (AI) has opened up revolutionary opportunities in a number of industries, including healthcare. AI integration with telemedicine appears to be a promising option in the context of rural India, where access to high quality medical treatments continues to be a persistent difficulty. In order to solve healthcare disparities in rural areas, this introduction examines the novel idea of AI Assisted Telemedicine Kiosks, which combines the effectiveness of AI with telemedicine services. Residents of rural areas are frequently forced to travel great distances for medical consultations due to the lack of access to healthcare services.

2. Body of Paper

AI-based telemedicine kiosks have emerged as an effective solution for transforming rural healthcare by addressing the challenges of limited medical infrastructure, shortage of healthcare professionals, and poor accessibility in remote areas. These kiosks integrate medical sensors, artificial intelligence, and telecommunication technologies to provide basic health screening, preliminary diagnosis, and real-time consultations with remote doctors.

AI algorithms analyze patient data such as vital signs and symptoms to assist in early disease detection, risk assessment, and clinical decision support, thereby reducing delays in treatment. User-friendly interfaces with local language support make the system accessible to rural populations, while cloud-based storage ensures secure management of medical records.

By reducing travel costs, improving early diagnosis, and enabling continuous monitoring, AI-based telemedicine kiosks enhance healthcare efficiency, affordability, and reach, playing a crucial role in strengthening primary healthcare systems and achieving equitable rural health care transformation.
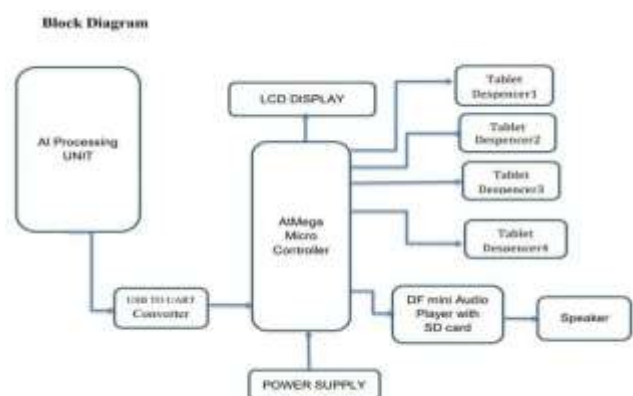

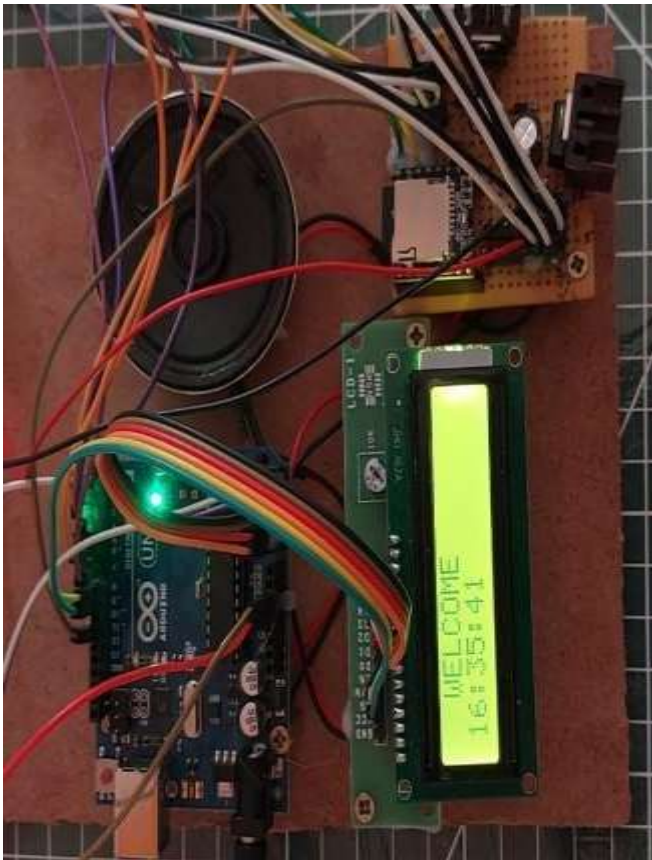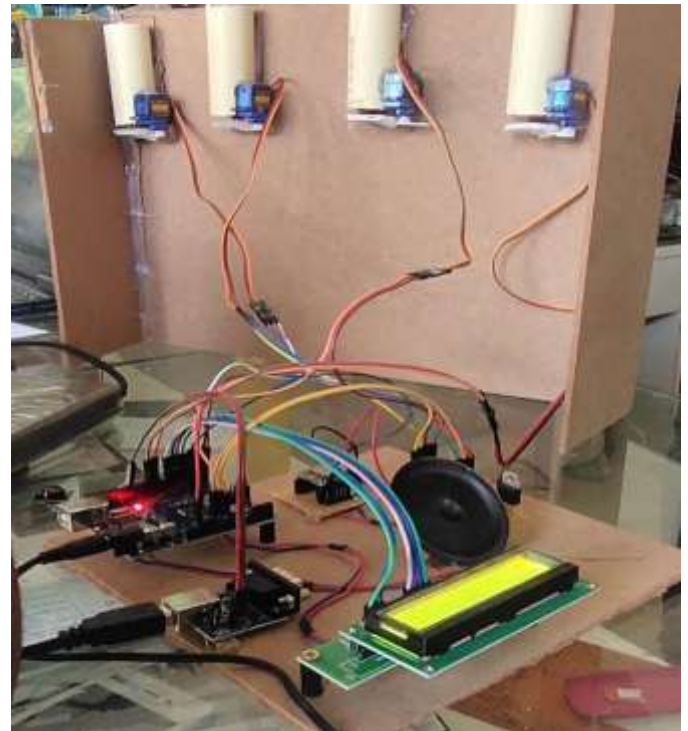Fig -1: Block Diagram Of System Architecture

Fig -2: Working Model

Fig -4: Final Result

Fig -3: Remedy AI Telemedicine

3.   CONCLUSIONS

The AI-Enhanced Telemedicine Kiosk project aims to bridge the healthcare gap in rural areas by providing AI-driven diagnostics, remote consultations, and automated medication dispensing. These kiosks offer a cost-effective and accessible solution to healthcare challenges in underserved communities. By integrating AI for symptom analysis and treatment recommendations, the project ensures timely and accurate preliminary diagnoses. Patients receive immediate assistance without the need for extensive travel, reducing delays in medical care.

ACKNOWLEDGEMENT

REFERENCES

[1] Zhang

[2] , J., Gajjala, S., Agrawal, P., Tison, G. H., Hallock, L. A., Beussink-Nelson, L., ... & Narayan, S. M. (2018).

[3] Attia, Z. I., Kapa, S., Lopez-Jimenez, F., McKie, P. M Ladewig,D. J., Satam, G., ... & Friedman, P. A. (2019).

[4] Ardila, D., Kiraly, A. P., Bharadwaj, S., Choi, B., Reicher, J. J., Peng, L., ... & Lungren, M. P. (2019).
[5] Jin, C., Ye, N., Zhang, C., Hoffman, E. A., & Lin, C. L. (2019).

[6] Gao, J., Muftah, M., Judge, P., Guha, I. N., & Bainbridge, D. (2016).

[7] Settles, B., & Albers, D. J. (2018). Beyond the brain: Applications of deep learning in the diagnosis and treatment of kidney disease.

[8] Aftab, M., Santos, J., Uppot, R. N., Mahmood, U., & Harisinghani, M. (2017).

[9] Panch, T., Szolovits, P., & Atun, R. (2018). Artificial intelligence, machine learning and health systems. Journal of global health, 8(2).

[10]   Hinton, G. E., & Salakhutdinov, R. R. (2006). Reducing the dimensionality of data with neural networks. Science, 313(5786), 504- 507.

[11] Min, S., Lee, B., & Yoon, S. (2017). Deep learning in bioinformatics. Briefings in bioinformatics, 18(5), 851-869.
[12] Cruz-Roa, A., Gilmore, H., Basavanhally, A., Feldman, M., Ganesan, S., Shih, N., ... & Tomaszewski, J. (2018).

[13] Litjens, G., Sánchez, C. I., Timofeeva, N., Hermsen, M., Nagtegaal, I., Kovacs, I., ... & Kovacs, I. (2016).

[14] Litjens, G., Kooi, T., Bejnordi, B. E., Setio, A. A. A., Ciompi, F., Ghafoorian, M., ... & Sanchez, C. I. (2017).

[15] Chaudhary, K., Poirion, O. B., Lu, L., Garmire, L. X., & Pal, R. (2018).

[16] Cho, K. H., Kim, H., & Kim, Y. H. (2017). Ensemble learning of deep learning for remote-sensing image classification. Remote Sensing, 9(12), 1235.