



NUTRI-VISION: Intelligent Monitoring and Enhanced Food Distribution with Prediction for Child Nutrition Program

¹Asif Mulla, ²S Al Rayan, ³Rifa Aysha, ⁴Rakshita, ⁵Subhas K

¹Guide, ^{2,3,4,5}Student

¹Information Science and Engineering,

¹Yenepoya Institute of Technology, Mangalore, India

Abstract:

The NUTRI-VISION project is designed to improve the efficiency and transparency of child nutrition programs, especially in government-run play schools (Anganwadis). It uses modern technologies like AI, real-time tracking, and data analytics to ensure that food is distributed fairly and accurately to children and pregnant women, as outlined by government policies. By tackling problems like fraud, misreporting, and delays, the system helps make sure that resources reach the right people on time and in the right quantity. The solution features a user-friendly web interface for live monitoring, a secure backend to manage data, and smart prediction tools to spot irregularities in food supply. By bringing together these technologies, NUTRI-VISION makes the entire distribution process more accountable and transparent, helping strengthen public trust and support better health outcomes in communities that need it most.

Keywords: Nutri Vision, Child Nutrition, AI-Based Prediction, Food Monitoring, Real-time Monitoring, Government Welfare.

I. INTRODUCTION

NUTRI-VISION is an innovative solution designed to enhance the transparency, efficiency, and accountability of child nutrition programs, particularly those operating in government-run Anganwadis (play schools). These programs play a vital role in supporting the health and development of children and pregnant women in underserved communities, but they often face challenges like misallocation of resources, inefficiencies, and even fraud. NUTRI-VISION tackles these issues by integrating advanced technologies such as AI-driven predictive models, real-time monitoring, and data analytics to ensure that food distribution is accurate, timely, and aligned with government policies. With a user-friendly web interface and secure data management system, stakeholders can track the entire supply chain, quickly identify any irregularities, and take corrective action as needed. Its predictive features also help anticipate problems before they escalate, whether it's a potential shortage or a pattern of misuse. By combining smart tech with a people-first approach, NUTRI-VISION strengthens trust in public welfare programs and ensures that critical nutritional support reaches those who need it most—safely, fairly, and reliably. Moreover, by digitizing and automating key aspects of the distribution process, the system reduces manual errors, saves time, and eases the administrative burden on Anganwadi workers. In the long run, NUTRI-VISION aims to empower local authorities with meaningful insights, promote ethical governance, and create a more resilient and responsive public health infrastructure.

II. RELATED WORKS

Many efforts have been made to improve the transparency and efficiency of nutrition-related public welfare programs, like the Mid-Day Meal and Integrated Child Development Services (ICDS), but many still face challenges. Existing systems often rely on manual reporting or basic digital tools, which can result in discrepancies in food distribution. While some solutions have introduced biometric attendance or food tracking methods, they often lack real-time monitoring and predictive features. AI-based models have been explored for supply chain optimization, but they are typically designed for urban settings and don't address the unique challenges faced in rural areas, such as poor connectivity. Furthermore, many platforms designed for government monitoring tend to be complex and not user-friendly, often excluding ground-level staff from using them effectively, especially when local languages and ease of use are not prioritized. This highlights the need for a more integrated, AI-powered solution like NUTRI-VISION, which can automate data collection, detect anomalies in real-time, and be easily accessible to users with limited technical knowledge.

III. CONCLUSION

In conclusion, NUTRI-VISION is a revolutionary solution that enhances the efficiency, transparency, and accountability of child nutrition programs, particularly in underserved areas. By leveraging AI, real-time tracking, and predictive analytics, it ensures accurate, timely food distribution in line with government guidelines, addressing issues like fraud, misreporting, and operational inefficiencies. The system's user-friendly interface allows administrators and officials to monitor distribution in real time, taking immediate corrective actions when discrepancies arise. Predictive models help prevent issues before they become problems, and robust reporting features ensure compliance with regulations, fostering public trust. Overall, NUTRI-VISION exemplifies how modern technology can optimize public welfare programs, ensuring resources are used effectively and equitably to improve the health and nutrition of vulnerable populations.

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