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Smart Service Encounters in Hospitality: An Empirical Study of IoT-Enabled Autonomous Food Delivery Robots and Customer Experience in Goa Restaurants

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Abstract: *This study empirically investigates the deployment of Internet of Things (IoT)-enabled autonomous food delivery robots as technology-mediated service agents in the restaurant sector of Goa, India. Integrating perspectives from service marketing, hospitality management, and smart service systems, the research examines the dual impact of robotic food delivery on operational efficiency and customer experience. A quasi-experimental research design was adopted in simulated restaurant environments, comparing robotic delivery with conventional human-based service encounters. Key performance indicators included delivery time, service accuracy, staff intervention frequency, and customer satisfaction measures. The findings reveal that IoT-enabled food delivery robots significantly enhance service speed, reliability, and process consistency, while also generating positive customer perceptions related to innovativeness, convenience, and service professionalism. However, challenges persist in terms of system reliability, battery endurance, and the perceived absence of human warmth in service encounters. The study contributes to interdisciplinary literature by conceptualizing service robots as frontline service interfaces and offers actionable insights for hospitality managers seeking technology-driven service differentiation in tourism-intensive regions.*

Keywords: IoT, service robots, hospitality marketing, customer experience, smart service systems, Goa

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