

## AN ABSTRACT OF THE THESIS OF

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The integration of autonomous vehicles into the food delivery sector represents a significant leap forward in enhancing efficiency, reducing human labor, and potentially lowering costs. However, their deployment faces significant challenges, including security and data integrity, compounded by the limitations of traditional blockchain technologies such as high energy demands and slow transaction processing that hinder scalability and real-time operations. This paper proposes the integration of IOTA blockchain with autonomous delivery vehicles to address these issues. IOTA's Tangle, a Directed Acyclic Graph, offers transaction fee elimination, reduced energy consumption, and improved scalability with quicker confirmations, aligning with the needs of the Internet of Things (IoT) and autonomous delivery systems. The research indicates that IOTA's integration significantly boosts the operational efficiency, security, and scalability of autonomous food delivery robots, supports seamless micropayments, and upholds data integrity, facilitating a decentralized, self-sufficient delivery ecosystem. These findings not only enhance current delivery services but also signal a shift towards broader applications in various sectors, laying the groundwork for extensive IOTA blockchain adoption in IoT, marking a step towards a new era of streamlined, secure, and scalable delivery services.