AutoDine– Smart Restaurant Table-to-Kitchen Coordination Platform using IoT

Abstract— **Automation technologies are adversely impacting traditional service industries by negatively affecting customer satisfaction. This discusses the development of an Internet of Things (IoT)-based intelligent restaurant system called AutoDine, which integrates customers tables with the restaurant kitchen via table units and a central host server powered by the ESP32 chip. AutoDine allows customers to view the menu and place orders from a table-mounted device with a display, thus eliminating the need for wait staff to take orders manually. The kitchen receives real-time notifications when customers place orders and can manage those orders through an internet browser-based dashboard that allows restaurant employees to accept and reject orders, as well as indicate when food has been prepared. The use of dual carts for order management prevents duplicate orders and alleviates workflow confusion also. When customers request their bill, the system will produce GST-compliant invoices that can be paid either utilizing UPI QR codes, cash, or credit/debit cards. Additionally, the AutoDine system will not allow orders to be abandoned until payment is confirmed utilizing each table's individual state machine workflow. The AutoDine system is modular and scalable for use throughout a restaurant on multiple tables, and it can be integrated with autonomous waiter robots for chassis-based navigation to automate the entire restaurant from order placement to food delivery and payment processing.**

Keywords— **Smart Ordering, ESP32, Payment Integration, Real-time Coordination, Restaurant automation**