# Nurturing Akshaya Patrae-Automation for Mid Day Meal Distribution and Management at Educational Institution

**Prof. Malatesh Kamatar[1], Prof. Indira[2], Anusha B[3], MuskanKosar[4], Megha P[5], Arpita S Gungadi[6]**

Assistant Professor, Department of Computer Science and Engineering[1,2]

Students, Department of Computer Science and Engineering[3,4,5,6]

Proudhadevaraya Institute of Technology, Karnataka, India

maltkpl@pdit.ac.in, indira@pdit.ac.in, anushab2512@gmail.com, muskankousa@gamil.com, meghanagungadi@gmail.com, arpitagungadi3015@gmail.com

**Abstract**: *Ensuring efficient and responsible food distribution in student cafeterias is a significant concern in educational institutions worldwide. To address this issue, we present a Smart Food Dispenser system that employs a combination of innovative technologies, including Arduino microcontrollers, RFID identification, load cells, gas sensors, ultrasonic sensors for level monitoring, DC motors for dispensing, NodeMCU for IoT connectivity, and ultrasonic technology for excess food checking. The Smart Food Dispenser is designed to enhance the overall food management system in student cafeterias. Students can access the system using RFID cards, which not only simplifies the process but also helps in tracking their meal consumption. The system incorporates load cells to measure precise food portions, reducing food wastage and promoting responsible eating habits. To ensure food quality and safety, gas sensors are integrated to monitor the cafeteria environment, detecting any potential gas leaks or air quality issues. Furthermore, ultrasonic sensors are employed for real-time level monitoring of food containers, allowing cafeteria staff to replenish items as needed, improving operational efficiency. The DC motor-based dispensing mechanism provides accurate and controlled food portions to students, eliminating food spillage and waste. Additionally, NodeMCU facilitates real-time data collection and remote monitoring, enabling cafeteria managers to access consumption patterns and stock levels. The system's innovation lies in its ability to employ ultrasonic technology for excess food checking. By continuously monitoring food containers, it can detect excess portions, ensuring that students receive the desired amount of food without overloading their plates.*

**Keywords:** NodeMCU

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