

IoT-ENABLED MINI FRIDGE FOR FOOD SPOILAGE DETECTION

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Abstract

One of the biggest issues facing households and the food industry is food spoilage. Food quality is decreased by improper storage, which results in waste and health hazards from consuming spoiled food. This project presents a smart refrigerator system that uses sensors to check the quality of the food. The system has a DHT11 sensor to measure the temperature and humidity within the refrigerator and a MQ4 gas sensor to identify spoiled food. A 0.96-inch OLED panel displays the results, showing food as either "edible" or "spoiled." This method encourages more intelligent and sustainable food storage. It is perfect for families and small companies. This concept provides a cost-effective and user-friendly design for homes and small companies in response to the growing demand for improved food storage. The smart fridge reduces food spoilage by monitoring food in time and promptly notify customers when the food is spoiled. Because of its modular design, the system may easily be scaled up for larger applications such as supply chains, restaurants and supermarkets. The initiative supports worldwide energy and environmental conservation goals while addressing food safety concerns with compact, energy-efficient components.