



Cover page

Project title: Cupcakes Machine

Academic Year: 2023/2024

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Department Name: Computer Engineering

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Project Type Software or Hardware (Choose one) → Hardware

Supervisor Name: Dr. Suleiman Abu Kharmeh.

Format:

- Single space, Times New Roman.
- 12 pt,
- Maximum 1 page.

Abstract Body:

Items must be provided in the Abstract:

- Why do you think this project is important? Please explain the significance of this Project in brief.
- In your point of view what are the important aspects that should be covered in the project?
- Objective(s): In your view, please explain the main objectives of the project.
- Methodology: Give a brief outline of the application development process.
- Had this project been done before? Are there any similar applications available today?
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- **Note:** Please deliver this abstract early to ensure that your Project has been approved by the department's projects committee. **Registration will not be done without this approval.**



Project's Abstract:

At a time when industries are moving towards providing machines and reducing the manpower, we saw the need of doing something similar in the field of food-making. The goal is to provide an integrated machine suitable for using in public places, that can make cupcake from raw ingredients according to user preference and go through all the necessary stages to complete the process, as we have not seen a currently available project that does this.

This machine produces one cupcake at a time, where data is entered from the user and based on this data, the cup will go through different stages, the first stage where we will add the chosen flavor (chocolate or vanilla), then the liquids (oil & water), and then the mixing stage, the user can choose additional toppings (e.g., chocolate chips) and the cup will finally enter the heating mode (the heating will be a small oven at 90C/70C), the mixer will be cleaned after each order. The system also connected with a mobile application to notify the manager if there is any loss in any ingredient.

For the electronics components, we used the Arduino Mega as the main microcontroller, an LCD and a keypad to enable the user to enter his order, keypad as payment method, Ultrasonic sensors to measure the quantity of the remaining ingredients, stepper motors to control the movement of the cup and the powder dispensing, dc motor for the mixer, servo motors to control the toppings adding, water pumps and relays for liquid dispensing, temperature sensor to keep the heater around the required temperature, and an ESP module to provide wireless communication with the mobile application.