Cover page

Project title: ICreamatic…….. Academic Year:2025
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Group Members: Basmala Samaneh……. Department Name: Computer Engineering

Aisha Abu Jeib……..

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Project Type Software or Hardware (Choose one)

Supervisor Name: Dr. Raed Qadi ……

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:

The project involves creating and designing an automatic ice cream production line. The system is a miniaturized form of an industrial machine that automates the whole ice cream making process, right from selecting a flavor to decorating it. The user chooses a flavor on the first touchscreen interface of the system. The machine automatically releases the base ingredients and the selected flavoring into a mixing chamber when selected.

The mixture is cooled by initiating an inbuilt cooling system through gas pipes and a compressor. While cooling the mixture, a motorized mixing device shakes the mixture to ensure even freezing and the right consistency for the ice cream. The machine is set to dispense the prepared ice cream into a cup as soon as it detects a cup under the dispensing cup.

The last process includes a decoration module that allows the user to activate the release of a topping above the cup. All this process is done automatically for each cycle.

This project is significant since it applies embedded systems, sensor integration, mechanical control, and realtime automation in a food-grade environment. It is pedagogically valuable because it demonstrates an actual industrial application through low-cost components and scalable design.

The key issues covered include subsystem integration (mixing, cooling, dispensing, decoration), user interface as a touchscreen, feedback control systems, and process synchronization. The overall objectives of the project are to develop an end-to-end functional prototype for complete automation of the entire ice cream production process and providing the students with hands-on experience in developing a real-time electromechanical system.

While commercial ice-cream machines are available, it is rare that systems offer total automation of flavor selection, manufacturing, cup control, and decoration in a matter of

minutes in a miniature educational version. Therefore, the current project is a new and practical application suitable for learning as well as development.