

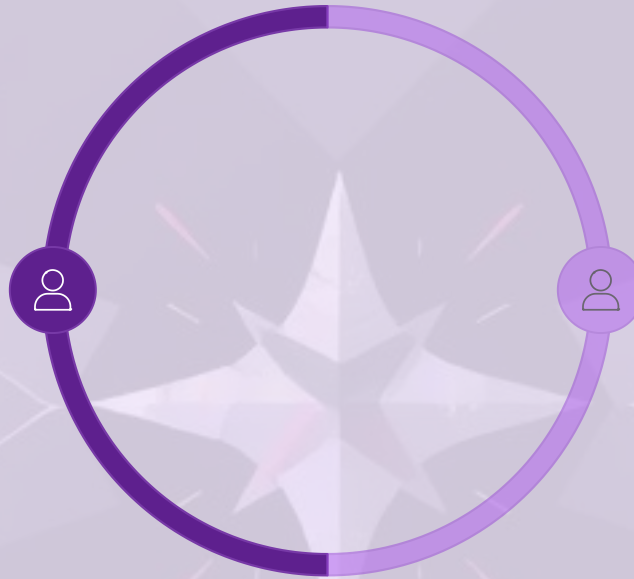
ICreamatic – Automated Ice Cream Production Line

"Ice cream, a cool delight that melts worries away, blending flavors of joy in every scoop."

An-Najah National University – Faculty of Engineering & IT

Meet Our Team

Basmala Samaneh



Aisha Abu Jeib



Dr. Raed Al-Qadi

Supervisor

What & Why ICreamatic?

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What is ICreamatic?

- A fully automated ice cream production line, from flavor selection to decoration.
- Combines mechanical design, cooling system, and Arduino-based control.

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Why This Idea?

- High local & global demand for ice cream.
- Very few fully automated small-scale systems exist.
- Practical + educational project that links engineering with real applications.

System Workflow

User Selection

Ingredient Release

Freezing Cycle

Topping
Application



Cup Dispensing

Mixing Process

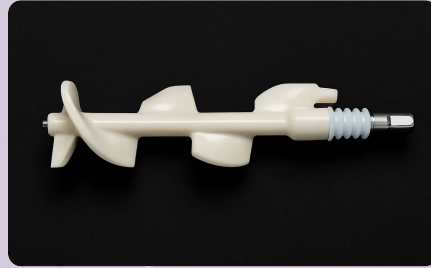
Ice Cream
Dispense

System Design & Operation

- Cooling System (Core Part):



Stainless steel cylinder



Mixing Auger



Copper pipes with
circulating refrigerant
(compressor +
radiator).



AC Motor

System Design & Operation

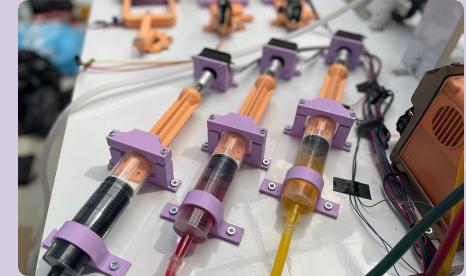
- Other Stages:



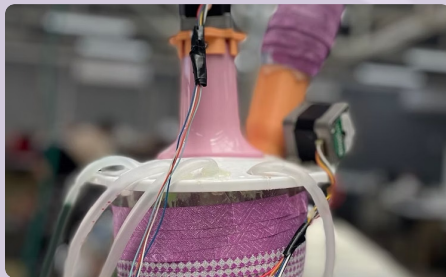
User Selection



Cup dispenser



Flavor dispenser



Ingredients dispensing & mixing



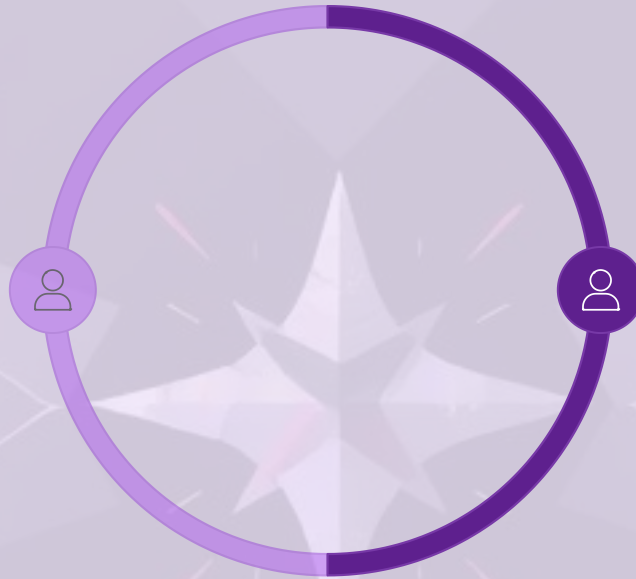
Ice Cream Release



Topping release

Meet Our Team

Basmala Samaneh



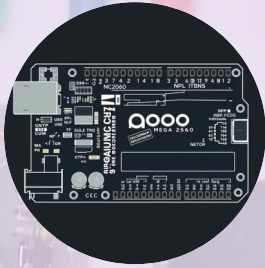
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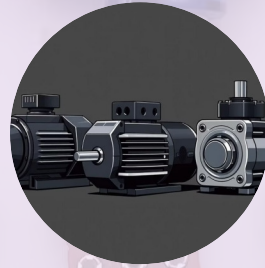
Supervisor

Key Components



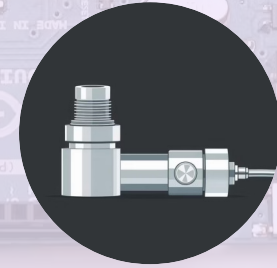
MCUs

2x Arduino Mega 2560 for robust control.



Motors

Compressor, AC, stepper, and servo motors for precise movement.



Sensors

Hall Effect, Limit switch and IR Sensors for accurate position detection.



I/O

Keypad and LCD (I2C) for user interface.



Drivers

L298N motor driver and relay modules for power control.

Challenges



**Cooling Efficiency:
achieving fast
freezing time.**



**Smooth dispensing
without clogs or
uneven flow.**



**Balancing low-cost
prototype with
effective
performance.**



**Limited timeframe
to complete a full
automated system.**

Future Work

Building on our current success, we envision several key areas for future development and enhancement of the ICreamatic system:



Automated Cleaning

Implement a self-cleaning cycle to minimize manual maintenance and ensure hygiene.



Smart Connectivity

Integrate Wi-Fi and mobile app control for remote monitoring and operation.



Enhanced Cooling System

Develop a more efficient and rapid cooling mechanism for faster production cycles.



Scalable Production

Design modular components to allow for easy scaling of production capacity.

Thank You for Your Attention!

We appreciate your time and interest in our project.
Your feedback and suggestions are always welcome!