



POP IT UP



REEM



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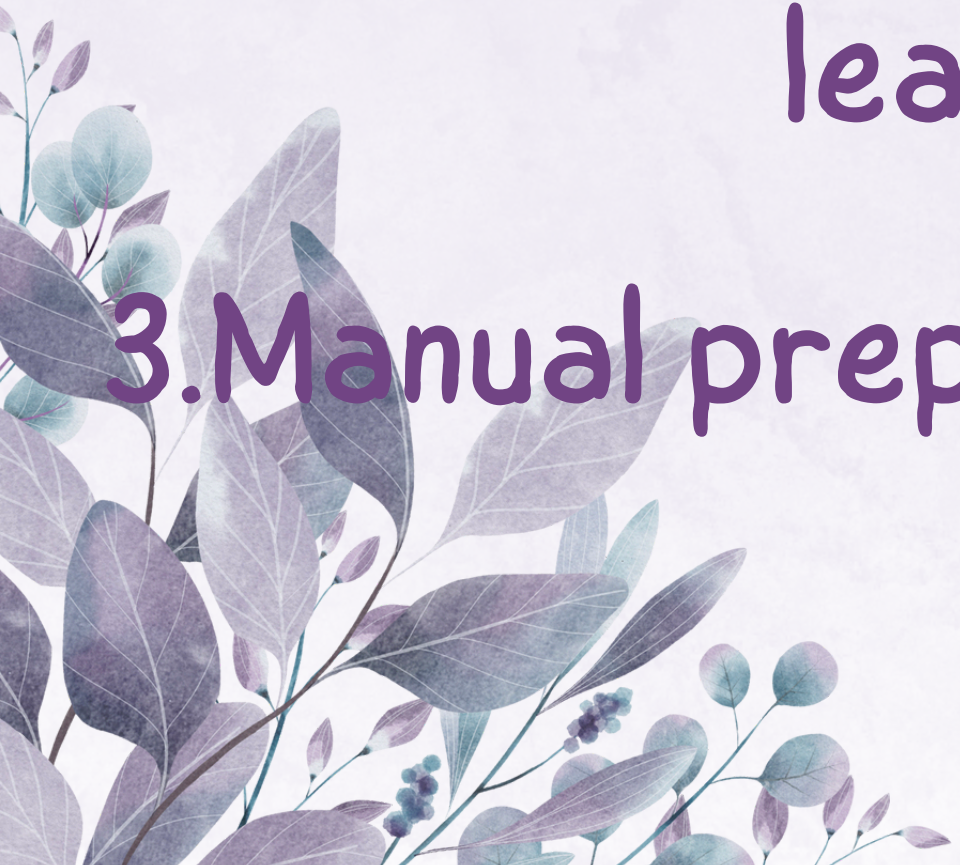
Introduction

Our project is an automated popcorn machine called “**Pop It Up**”. It is designed to prepare fresh popcorn in a fully automatic process — starting from dispensing the cup, adding oil and seeds, cooking, and finally delivering the popcorn with different flavors. The system combines mechanical parts such as motors, pistons, and sensors with a microcontroller (Arduino Mega) for control and automation. Our goal is to provide a smart, efficient, and user-friendly solution that saves time and ensures consistent popcorn quality.





Problem Statement

1. Preparing popcorn manually requires time and effort, with multiple steps (oil, seeds, mixing, heating).
 2. Difficulty in controlling quantities accurately, which may lead to waste or unbalanced taste.
 3. Manual preparation reduces consistency in quality from one batch to another.
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Project Objectives

1. Automation: Develop a fully automated system that handles the entire popcorn-making process (dispensing, cooking, and delivery) with minimal human intervention.
 2. Consistency & Quality: Ensure accurate portion control and cooking time to deliver popcorn with consistent taste and quality in every batch.
 3. User Experience: Provide an easy-to-use interface with flavor options, making the process faster, smarter, and more enjoyable for the user.
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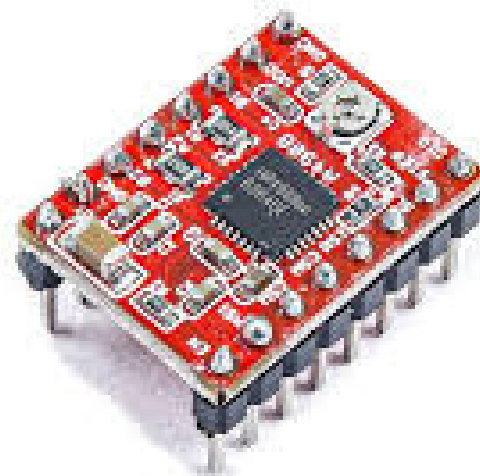
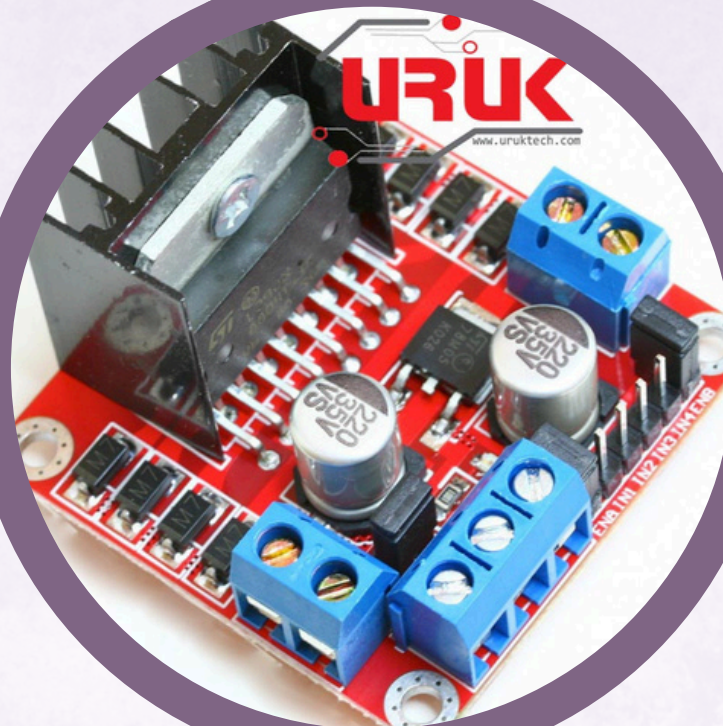
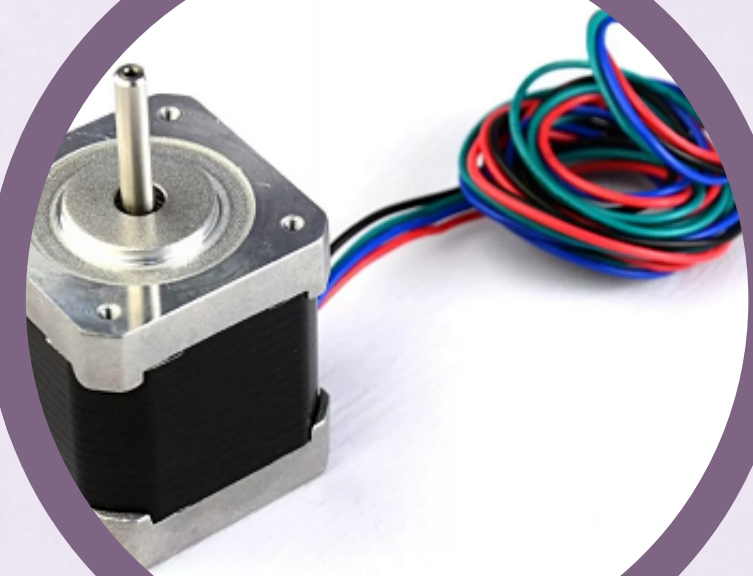
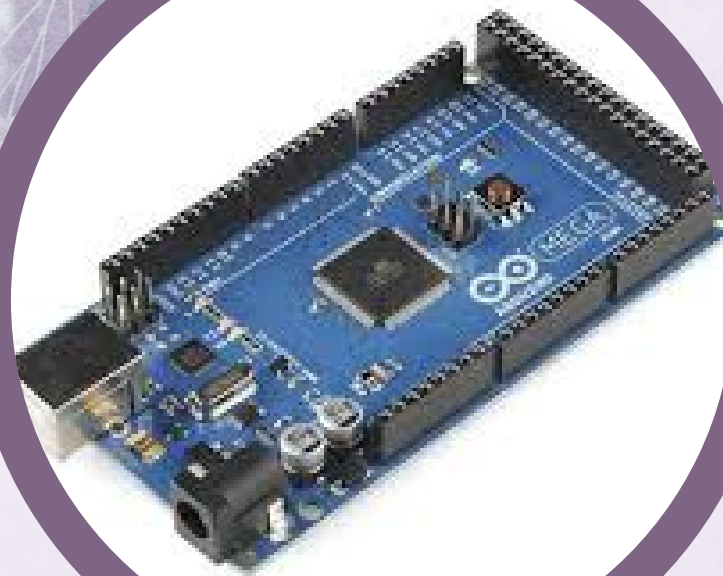
System Overview

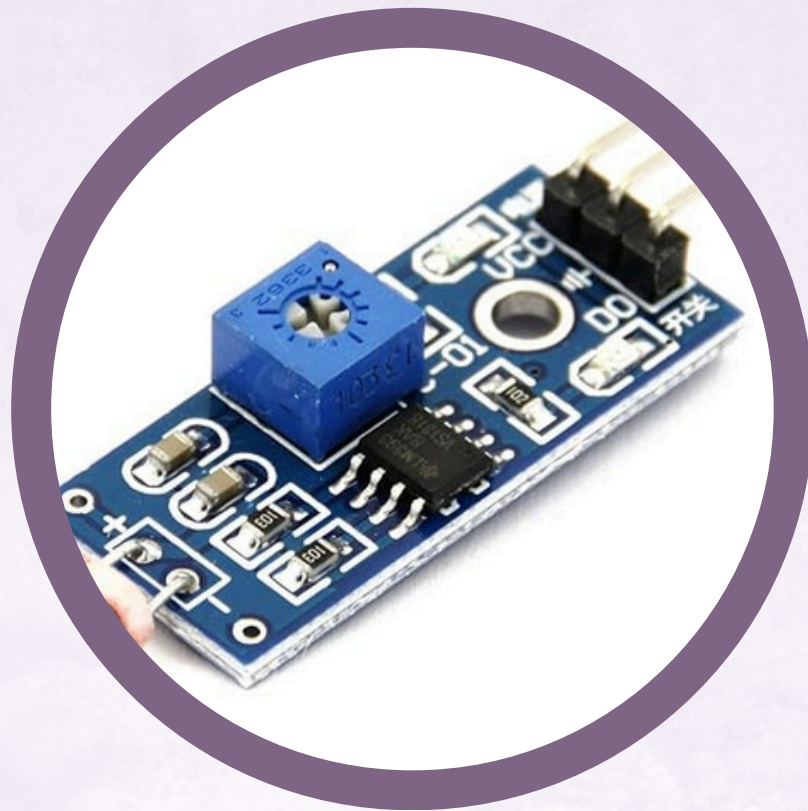
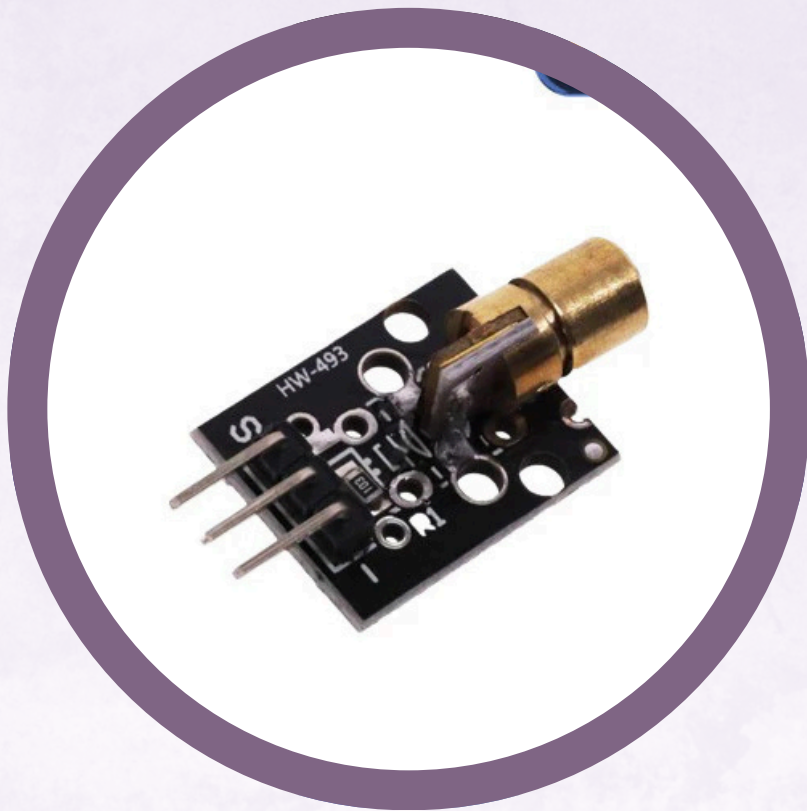
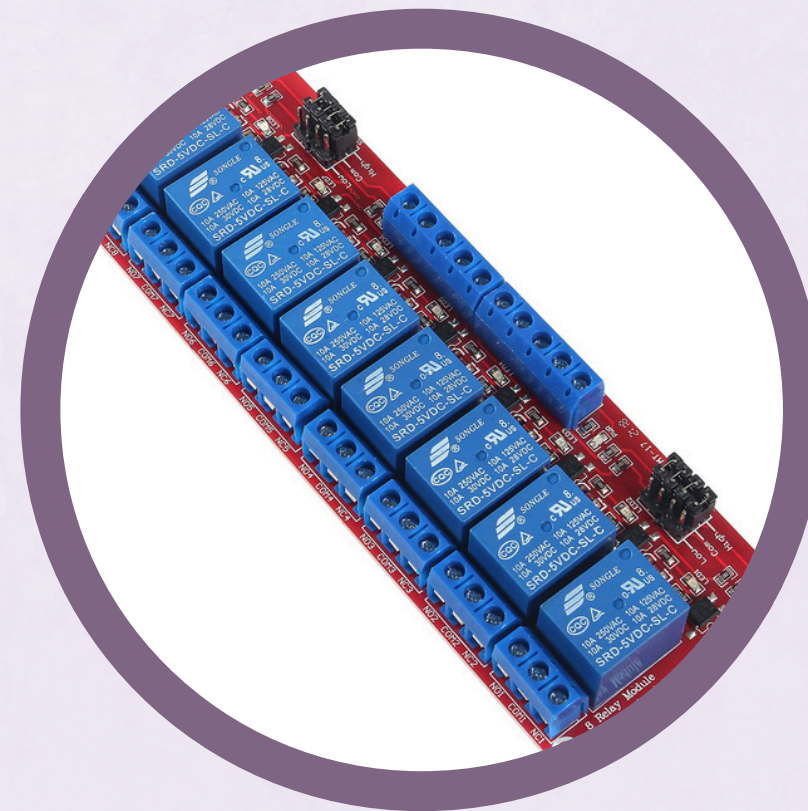


Pop It Up machine consists of:

1. Automated cup dispenser for delivering cups at the start of the process.
2. Oil pump and servo-controlled seed gate for accurate ingredient dispensing.
3. Heating element and stirring motor for popcorn cooking.
4. Slider system with stepper motor and limit switch for cup movement.
5. Flavor dispensing units for multiple taste options.
6. Arduino Mega control with LCD & keypad user interface.

Hardware Component







CHALLENGES

Limited time to complete design, coding, and integration.

Difficulties in controlling stepper motors using the A4988 driver.

Frequent damage of electronic components during testing and wiring.

High cost of electronic parts and mechanical components.





Future Work

Enhance system reliability with more durable electronic components.

Add wireless/mobile control for easier user interaction.

Improve flavor dispensing to support more options and better accuracy.





THANK YOU