

Team Introduction:

Group Number: 17

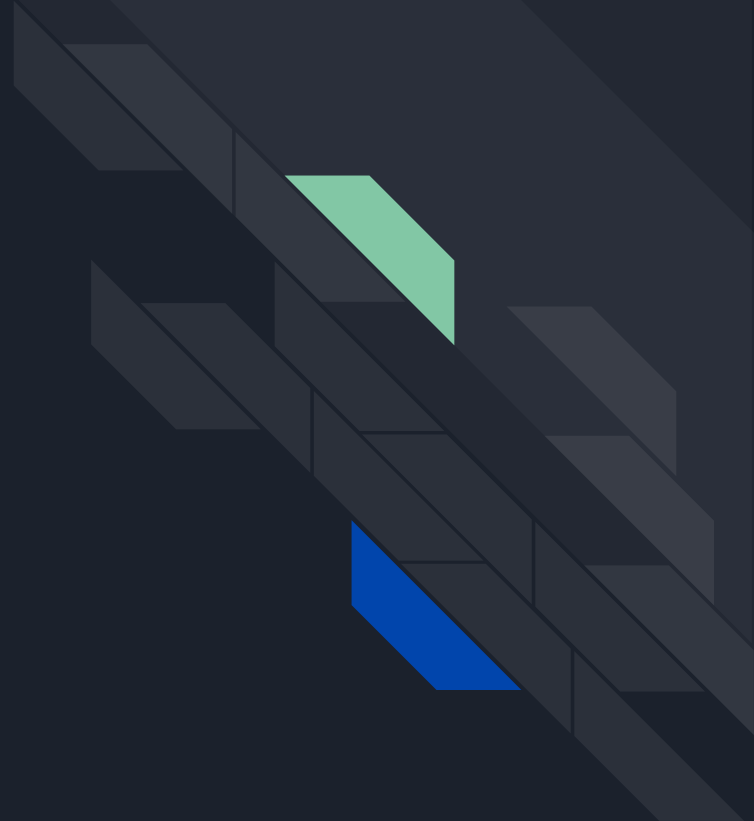
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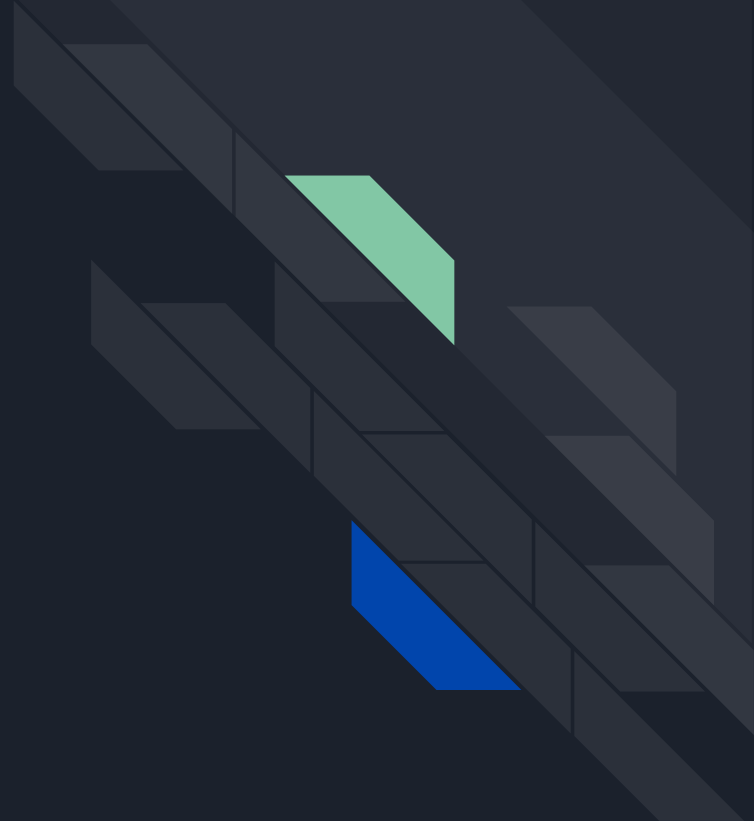
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Project Name and Abstract

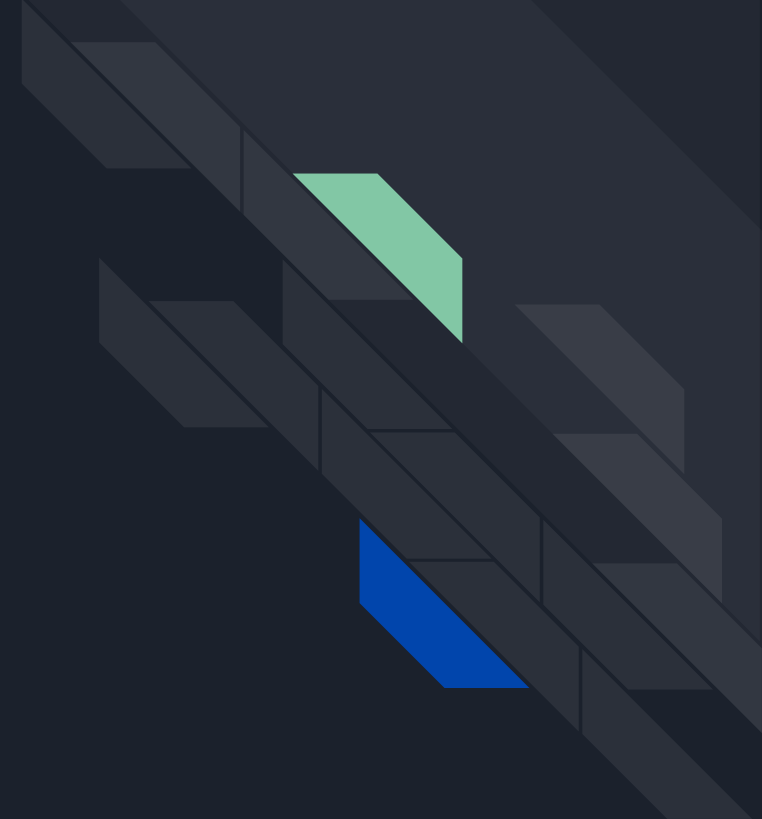
Project Name: Automatic Cereal Dispenser

Abstract: Integrating advanced features to enhance user interaction and reduce waste, our Automatic Cereal Dispenser merges significant software development with hardware integration. This includes precise servo motor control and enhanced serial communication between Arduinos, offering a customizable and sustainable breakfast experience. Users can effortlessly select their preferred cereal type and quantity, aided by an innovative sensor system that monitors cereal levels and signals when restocking is necessary.




Project Idea

Our project is centered around the design and implementation of an innovative cereal dispenser that automates the breakfast preparation process, particularly appealing to children and busy adults. The dispenser not only offers convenience but also engages young users with its magical, automatic functionalities, promoting independence and healthy eating habits among toddlers.



Project Design – I/O Devices Used



The design incorporates several I/O devices to facilitate interaction and operation:


- Two Arduino microcontrollers to handle different aspects of functionality.
- A 16x2 LCD screen to display options and information.
- Push buttons to allow users to choose cereal type and quantity.
- Servo motors to dispense cereal with precision.
- LEDs and resistors to indicate the system status and manage power usage.

Communication Used



Our project uses advanced serial communication protocols between two Arduinos to ensure seamless interaction and system stability. The user interface Arduino collects inputs and displays feedback, while the dispensing Arduino controls the mechanics of cereal dispensing. This setup improves data exchange reliability, especially in handling unexpected user inputs or potential hardware malfunctions.

Original Work



We have developed a system using which u can select the portion of your breakfast, and also we made it customizable. For example, if anyone is not satisfied with the quantity of the cereal dispensed with our pre-set amount, they can change it from the source code and make it according to their portion size.

What Worked



The integration of hardware and software has proven effective, with the prototype allowing users to select and dispense cereal accurately. Feedback mechanisms and intuitive controls have been particularly successful, providing a user-friendly interface that has been well-received in trials.

What Doesn't Work or Problems



Despite many successes, we've encountered challenges such as intermittent sensor errors and occasional delays in communication between devices. These issues sometimes disrupt the operation and highlight areas for improvement in reliability and responsiveness.

Highlight Process/Team Related Roles



Kalash Shah focused extensively on software development, particularly in optimizing the user interface and integrating feedback mechanisms.

Jash Patel was instrumental in hardware assembly and integration, ensuring all components functioned seamlessly and met design specifications.

Image of our Circuit

