**Group Name: 10**

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**Project name: Home Made Cleaner**

**Objective:**

The objective of a homemade cleaner is to provide an effective and affordable alternative to commercially available cleaning products. Homemade cleaners are typically made from natural ingredients that are safe for both the environment and human health. The main objectives of using homemade cleaners include:

1. Cleaning effectiveness: The primary objective of any cleaner, homemade or commercial, is to effectively clean surfaces and remove dirt, grime, and stains. Homemade cleaners should be formulated in a way that allows them to achieve the desired cleaning results.

2. Cost-effectiveness: Homemade cleaners aim to provide a cost-effective solution for cleaning needs. By using common household ingredients and simple recipes, homemade cleaners can be significantly cheaper than buying commercial cleaning products.

3. Safety: Homemade cleaners prioritize safety by using natural ingredients that are less likely to cause harm to the environment and human health. Reducing exposure to harsh chemicals found in many commercial cleaners is a key objective of using homemade alternatives.

4. Environmental friendliness: Homemade cleaners focus on reducing environmental impact by utilizing eco-friendly ingredients. This includes avoiding chemicals that can harm aquatic life, pollute water sources, or contribute to air pollution.

5. Customizability: Another objective of homemade cleaners is the ability to tailor the cleaning solution to specific needs. Different recipes can be adjusted to clean different surfaces or address specific cleaning challenges, providing versatility and flexibility.

6. Promoting sustainability: By encouraging the use of homemade cleaners, the objective is to promote sustainable practices by reducing reliance on single-use plastic packaging and minimizing waste associated with cleaning products.

Overall, the objective of homemade cleaners is to offer a safe, effective, and environmentally friendly option for cleaning, while also providing cost savings and the ability to customize cleaning solutions to meet individual needs.  
  
**Description:**  
  
 A homemade vacuum cleaner is a device built using common household items and basic engineering principles to create suction and facilitate cleaning tasks. While it may not have the same level of efficiency or power as commercially available vacuum cleaners, a DIY vacuum cleaner can still be useful for certain cleaning needs.

Here's a description of a basic homemade vacuum cleaner:

1. Container: Start with a sturdy container or a large plastic bottle that will serve as the body of the vacuum cleaner. It should have a wide opening to allow for easy suction and airflow.

2. Motor: Look for a small electric motor, such as one from an old handheld fan or a broken appliance. Attach the motor to the container securely using tape or glue, ensuring it is positioned near the opening.

3. Power source: Connect the motor to a power source. This can be achieved by using a battery pack or wiring it directly to a power outlet with the help of a power adapter.

4. Fan or impeller: Create a fan or impeller to generate suction. This can be done by attaching blades to the shaft of the motor. You can use lightweight materials like plastic or cardboard to create the blades, ensuring they are shaped to push air in a specific direction.

5. Inlet and outlet: Cut two holes in the container—one for the suction inlet and another for the outlet. The suction inlet should be located near the blades to capture dirt and debris. The outlet should be placed on the opposite side to allow the expelled air to escape.

6. Filter: Attach a filter to the suction inlet to prevent larger particles from entering the motor and causing damage. You can use a mesh screen, a piece of fabric, or even a sock as a makeshift filter.

7. Handle and attachments: To make the vacuum cleaner easier to handle, attach a handle to the container. You can use a wooden dowel or any other suitable material. Additionally, you can create various attachments like a nozzle or a brush by repurposing household items to aid in different cleaning tasks.

8. Arduino programming: Write a program for the Arduino board to control the motor and any additional features you want to include. You can use the Arduino IDE (Integrated Development Environment) to write the code. The program should allow you to turn the motor on or off, adjust the speed, and control any other desired functionalities.

9. Sensors and automation (optional): With Arduino, you can add sensors to your vacuum cleaner for enhanced automation. For example, you can incorporate proximity sensors to detect obstacles and automatically change the direction of the vacuum cleaner or halt its movement.

Once you have assembled the components, turn on the power source and use the homemade vacuum cleaner by pointing the suction inlet towards the area you want to clean. The suction created by the impeller will draw in air, along with dust and debris, which will then be filtered and collected inside the container. Periodically empty the container and clean or replace the filter to maintain the vacuum cleaner's efficiency.

It's important to note that homemade vacuum cleaners may not have the same power or safety features as commercial models, so caution should be exercised during use. Always prioritize safety and be mindful of potential risks, such as electrical hazards or overheating.  
  
  
 **Circuit Diagram:**

