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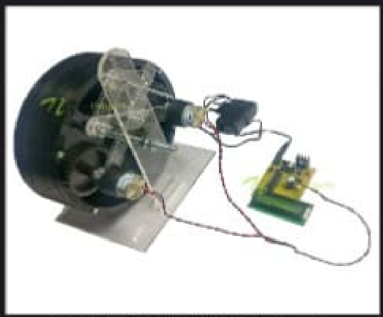

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Faculty list

WELCOME STUDENTS!! MEET WITH OUR DEDICATED FACULTY TEAM 😊😊

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Prof. Rupa Patel	Prof. Dev Nayak
Prof. Shivam Dave	Prof. Rekha Pathak
Prof. Rima Shah	Prof. Ajay Patel
Prof. Nitai Bajaj	Prof. Punit Gupta
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Our Story

Started in 2020 by a group of passionate makers, DIY Creators Hub has grown into a thriving community of DIY enthusiasts.

We believe in the power of creating with your own hands and sharing knowledge with others.

Our platform brings together experts and beginners, providing a space where everyone can learn, share, and grow their DIY skills.

What We Cover

🔨

Woodworking

From basic carpentry to fine furniture making, discover the joy of working with wood.

⚡

Electronics

Build your own gadgets and learn about circuits, programming, and automation.

🎨

Arts & Crafts

Express your creativity through various craft projects and artistic endeavors.

🌱

Home & Garden

Create beautiful spaces with DIY home improvement and gardening projects.

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Account Info

Member since: Jan 2024
Status: Active

Preferences

Language: English
Theme: Dark

Activity

Last login: 2 hours ago
Sessions: 42

Haptic-Augmented-Reality-CAD-HARCAD

Step 1: Gather Materials

Collect all the required components including Arduino board, servo motor, light sensors (LDRs), solar panel, jumper wires, and breadboard.

Step 2: Set Up the Solar Panel

Attach the solar panel to a base where it can rotate freely. Ensure the panel is securely positioned for stability during movement.

Step 3: Connect the Servo Motor

Wire the servo motor to the Arduino to control the rotation of the solar panel. Make sure the servo is placed in a way that it can rotate the panel along its axis.

Step 4: Connect Light Sensors

Attach light-dependent resistors (LDRs) to the Arduino. Place them in positions where they can sense the direction of the sunlight to adjust the solar panel accordingly.

Step 5: Write and Upload Code

Write the Arduino code to read the values from the LDR sensors and control the servo motor. Upload the code to the Arduino board to allow automatic adjustment of the panel's position based on sunlight intensity.

Step 6: Test the System

Test the setup by adjusting the light around the sensors to see if the solar panel rotates towards the brighter light source. Ensure smooth rotation and proper functioning.

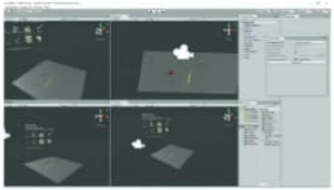
Step 7: Optimize the Design

Make any necessary adjustments to improve the system's responsiveness to sunlight. Consider adding features like a limit switch to prevent over-rotation of the solar panel.

Step 8: Final Assembly

Secure all components in place. Mount the solar panel system in a location where it can operate efficiently, such as an outdoor area that receives direct sunlight.

Haptic-Augmented-Reality-CAD-HARCAD



Step 1: Research & Conceptualization

Define the project scope, including the desired interaction between haptic feedback, augmented reality, and CAD modeling in the 6-Shooter environment.

Step 2: Choose Haptic Feedback Devices

Select the appropriate haptic devices (e.g., gloves, controllers) that will integrate with the AR system to provide tactile feedback for users.

Step 3: Design the AR System

Create the augmented reality setup, ensuring it can accurately superimpose CAD models into the real world for user interaction with the 6-Shooter setup.

Step 4: Develop the CAD Environment

Build the 3D models and environment in CAD software, ensuring compatibility with the AR system for real-time rendering and interaction.

Step 5: Integrate Haptic Feedback

Program and integrate haptic feedback into the CAD system, ensuring that physical sensations correspond to virtual interactions (e.g., shooting, aiming).

Step 6: Test & Optimize

Conduct thorough testing to ensure seamless interaction between haptic feedback, AR, and CAD. Optimize for real-time performance and accuracy.

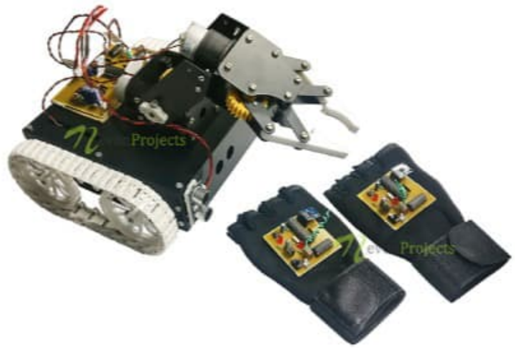
Step 7: Finalize User Interface

Design a user-friendly interface for easy control of the system, including settings for haptic intensity, AR display options, and CAD manipulation controls.

Step 8: Deploy & Evaluate

Deploy the system for testing with real users and gather feedback to evaluate the user experience and identify potential improvements.

Motion controlled pick & palce obstacles avoider robotic vehicle project



Step 1: Gather Materials

Collect the necessary components for the robotic vehicle, such as an Arduino board, motors, motor driver, ultrasonic sensor, IR sensor, pick-and-place mechanism (servo), Bluetooth module, and battery.

Step 2: Assemble the Vehicle Chassis

Assemble the robotic vehicle chassis, including the wheels and motors. Mount the DC motors to the chassis and connect them to the motor driver for movement control.

Step 3: Set Up the Ultrasonic Sensor

Attach the ultrasonic sensor to the robot's front. Connect it to the Arduino to measure the distance from obstacles, enabling the robot to avoid collisions.

Step 4: Attach the IR Sensor

Install the IR sensors on both sides of the robot to detect any obstacles nearby. These sensors will help the robot stay away from edges and navigate freely without falling off paths.

Step 5: Integrate the Pick-and-Place Mechanism

Connect the servo motor to the robot for the pick-and-place functionality. Ensure it can grip and place objects securely. Attach a suitable gripping mechanism to the servo motor.

Step 6: Connect the Bluetooth Module

Wire the Bluetooth module (e.g., HC-05) to the Arduino to enable motion control using a smartphone or remote controller via Bluetooth.

Step 7: Write and Upload the Code

Write the Arduino code that controls the motors, reads data from the ultrasonic and IR sensors, and operates the pick-and-place mechanism. Upload the code to the Arduino board.

Step 8: Test the Motion Control

Test the motion control by using a Bluetooth-enabled device to send commands to the robot. Ensure that the robot responds to the forward, backward, left, and right movements and that the pick-and-place function works as expected.

Step 9: Implement Obstacle Avoidance

Program the robot to avoid obstacles using the ultrasonic sensor. The robot should stop or change direction when it detects an obstacle in its path, preventing collisions.

Step 10: Final Testing & Optimization

Test the robot in a real environment, such as on a track with obstacles. Adjust sensor calibration and improve movement algorithms for better efficiency. Fine-tune the pick-and-place mechanism to ensure smooth operation.

Smart dustbin with IOT notification project

Step 1: Gather Components

Collect the necessary components: a DC motor, generator, Arduino board, power monitoring module (e.g., INA219), motor driver, battery, resistors, capacitors, jumper wires, and a display module (LCD or OLED).

Step 2: Set Up the Motor

Install the DC motor to act as both a driving motor and a generator during braking. Mount it securely on the mechanical system.

Step 3: Connect the Power Monitoring Module

Wire the power monitoring module (INA219 or similar) to the Arduino. Connect its input to the generator output to measure the voltage, current, and power.

Step 4: Attach the Motor Driver

Connect the DC motor to the motor driver to allow control during regular operation and facilitate energy recovery during braking.

Step 5: Add the Battery

Wire the battery to store the energy generated during braking. Include a charge controller to protect the battery from overcharging.

Step 6: Write the Arduino Code

Write and upload the Arduino code to read the power monitoring module data and display it on the LCD or OLED. The code should also include logic to manage the motor and generator switching.

Step 7: Test the System

Simulate braking by slowing down the motor and observe the power generation on the display. Verify that the energy is stored in the battery.

Step 8: Optimize and Finalize

Calibrate the power monitoring module for accurate readings. Secure all components in a compact and safe housing for practical use.

6-Shooter-Arduino-Drink-Mixing-Station

Step 1: Gather Materials

Collect the necessary components, including the Arduino board, motors, sensors, wires, and 6 drink dispensers.

Step 2: Setup the Circuit

Wire the motors and sensors to the Arduino board, ensuring each component is connected correctly for smooth operation.

Step 3: Program the Arduino

Write and upload the Arduino code to control the drink dispensers based on user input or sensor data.

Step 4: Assemble the Dispensers

Attach the motors to the drink dispensers and secure the system in place for stable operation during mixing.

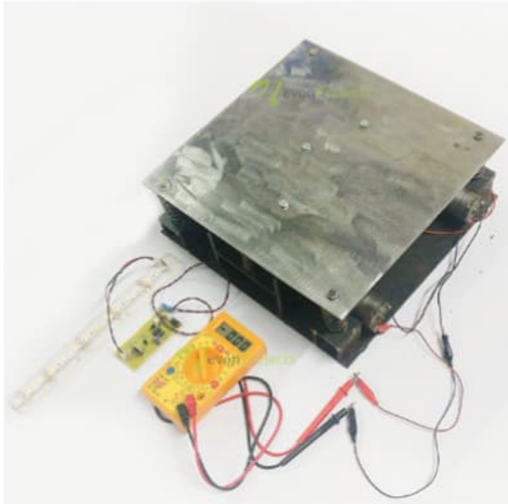
Step 5: Test the System

Run a series of tests to ensure the dispensers work as expected, with accurate control over the mixing process.

Step 6: Fine-tune and Optimize

Make any necessary adjustments to the Arduino code, motor speeds, or dispenser setups to ensure optimal performance.

Generate Electricity by walking power Generator floor tiles project



Step 1: Research and Plan

Study the principles behind piezoelectricity and how mechanical energy can be converted into electrical energy using floor tiles.

Step 2: Select the Piezoelectric Materials

Choose suitable piezoelectric materials (such as piezoelectric crystals or ceramics) that can generate electricity when subjected to pressure from footsteps.

Step 3: Design the Tile Structure

Create a durable and functional tile design that can house the piezoelectric materials, along with a mechanism to capture and store the energy generated by foot pressure.

Step 4: Integrate Energy Harvesting Circuit

Design and integrate a circuit that converts the electrical charge generated by the piezoelectric materials into usable electrical power. Include a rectifier and energy storage components.

Step 5: Build Prototypes

Construct a small-scale prototype of the power-generating tiles to test the performance and functionality of the energy harvesting system.

Step 6: Test the Tiles

Test the prototype tiles under various conditions to measure the amount of energy generated by footsteps. Ensure they are durable and capable of withstanding heavy traffic.

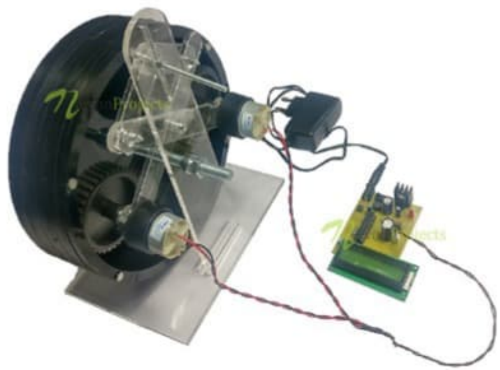
Step 7: Optimize the Design

Make improvements to the tile structure and energy conversion system based on test results. Focus on maximizing energy efficiency and improving durability.

Step 8: Scale Up Production

Once the design is optimized, produce the tiles in larger quantities and install them in public spaces (such as train stations or walkways) to generate electricity from foot traffic.

Regenerative bracking with power monitor project



Step 1: Gather Components

Collect the necessary components: a DC motor, generator, battery, Arduino board, power monitoring module (e.g., INA219), motor driver, resistors, capacitors, wires, and a display module (LCD or OLED).

Step 2: Assemble the Mechanical Setup

Set up the mechanical system by connecting the DC motor to the wheels or moving part of the system. Ensure the motor can act as a generator during braking.

Step 3: Connect the Motor to the Motor Driver

Wire the DC motor to the motor driver. This will enable control of the motor during normal operation and allow it to act as a generator during braking.

Step 4: Set Up the Power Monitoring Module

Connect the power monitoring module (INA219 or similar) to the Arduino. Attach it to the output of the generator to measure the voltage, current, and power during regenerative braking.

Step 5: Connect the Battery

Wire the battery to store the energy generated during braking. Ensure proper connections to avoid overcharging or damage to the battery.

Step 6: Write and Upload Code

Write the Arduino code to read data from the power monitoring module and display it on the LCD or OLED. Include logic to control the motor driver and monitor battery status.

Step 7: Test the System

Test the system by simulating motion and applying brakes. Verify that the generator produces power during braking and that the energy is stored in the battery.

Step 8: Optimize and Finalize

Optimize the system for maximum efficiency by calibrating the power monitoring module and adjusting the motor driver settings. Enclose the components in a safe, compact housing for the final product.

Aurdino ultrasonic sonar/radar monitor project

Step 1: Gather Materials

Collect all necessary components such as an Arduino board, ultrasonic sensor (HC-SR04), display (LCD or OLED), jumper wires, breadboard, and resistors.

Step 2: Connect the Ultrasonic Sensor

Wire the ultrasonic sensor (HC-SR04) to the Arduino board. Connect the VCC and GND pins, and then connect the Trig and Echo pins to the respective digital pins on the Arduino.

Step 3: Connect the Display

Wire the display (LCD/OLED) to the Arduino board. Ensure proper connection of the VCC, GND, SDA, and SCL pins for communication between the Arduino and the display module.

Step 4: Write and Upload Code

Write an Arduino program to trigger the ultrasonic sensor, measure the time it takes for the echo to return, and calculate the distance. Display the distance on the connected display.

Step 5: Test the System

Upload the code to the Arduino and test the setup. Point the ultrasonic sensor at objects and observe the distance readings on the display. Make sure the sensor detects objects within range.

Step 6: Optimize the System

Adjust the sensitivity or range of the sensor and calibrate the display output. Ensure the system functions smoothly in different environments.

Step 7: Add Radar Effect (Optional)

To enhance the radar effect, you can add a rotating motor to rotate the sensor and continuously scan the surrounding area. Update the code to handle the scanning logic and display radar-like visualization.

Step 8: Final Assembly

Mount the ultrasonic sensor on a rotating base or fixed position and secure the display. Connect everything in a compact and safe enclosure for a finished working radar monitor.

Third Eye for blind ultrasonic vibrating glove project

Step 1: Gather Components

Collect the necessary components: an ultrasonic sensor (HC-SR04), Arduino Nano or Uno, vibration motor, battery, resistors, jumper wires, a glove, and a small breadboard.

Step 2: Prepare the Glove

Choose a glove that fits comfortably. Mark spots on the glove where the ultrasonic sensor and vibration motor will be placed for optimal functionality.

Step 3: Connect the Ultrasonic Sensor

Attach the ultrasonic sensor to the glove. Connect its VCC and GND pins to the Arduino, and link the Trig and Echo pins to digital pins on the Arduino.

Step 4: Wire the Vibration Motor

Connect the vibration motor to the Arduino through a transistor circuit. Ensure the motor is securely attached to the glove so it can vibrate effectively upon activation.

Step 5: Power the System

Connect a small battery to power the Arduino. Use a battery holder to securely attach the battery to the glove for portability.

Step 6: Write and Upload Code

Write an Arduino program to trigger the vibration motor when an obstacle is detected within a specific range using the ultrasonic sensor. Upload the code to the Arduino board.

Step 7: Test the Glove

Wear the glove and test it in an environment with obstacles. The vibration motor should activate when the sensor detects objects within the set range, providing haptic feedback.

Step 8: Optimize for Comfort

Ensure the components are securely attached but not bulky. Adjust the sensitivity of the ultrasonic sensor and the strength of the vibration motor for comfortable and effective use.