Innovative designs, precision engineering and real-world solutions

State-certified Mechanical Engineer – ENSA Al Hoceima

Ahmed Kachade

Mechanical Engineer

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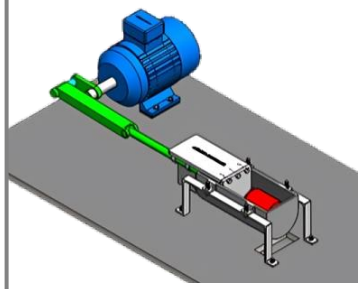
SOLIDWORKS CATIA

Automotive Engineering Projects

Car Suspension System

Explore More

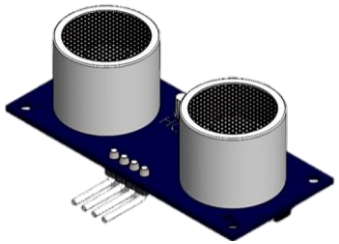
Manufacturing & Production Projects



Can Crusher

Explore More

Reverse Engineering Projects



HC-SR04 Ultrasonic Sensor

Explore More

Robotics Projects

Mobile Robotic Arm

Explore More

Sketch-to-CAD Conversion Projects

Car Suspension System

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Automotive Engineering Projects

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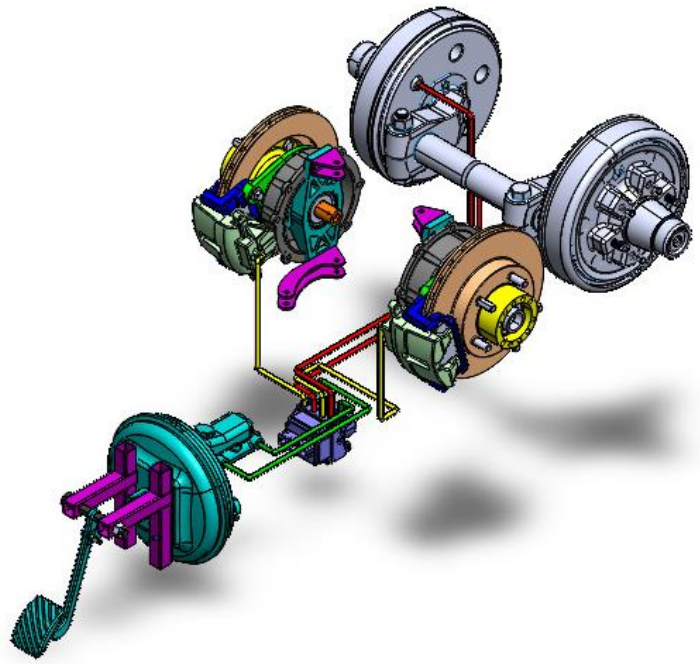
Description

Study and modeling of the Anti-lock Braking System (ABS) to enhance vehicle safety and control during emergency braking. Includes integration into the overall braking system.



Anti-lock Braking System (ABS)

Automotive Engineering Projects

Thermal Engine Components

Description

Design and analysis of various components of a thermal Parts of an engine. Study of mechanical stresses, heat dissipation, and performance optimization.

Automotive Engineering Projects

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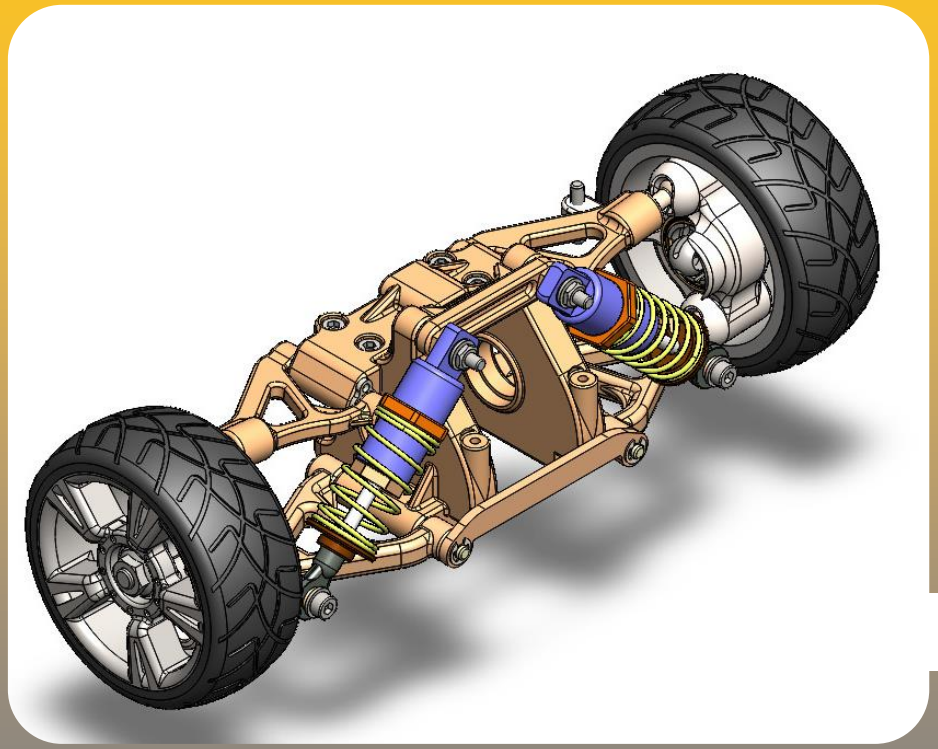
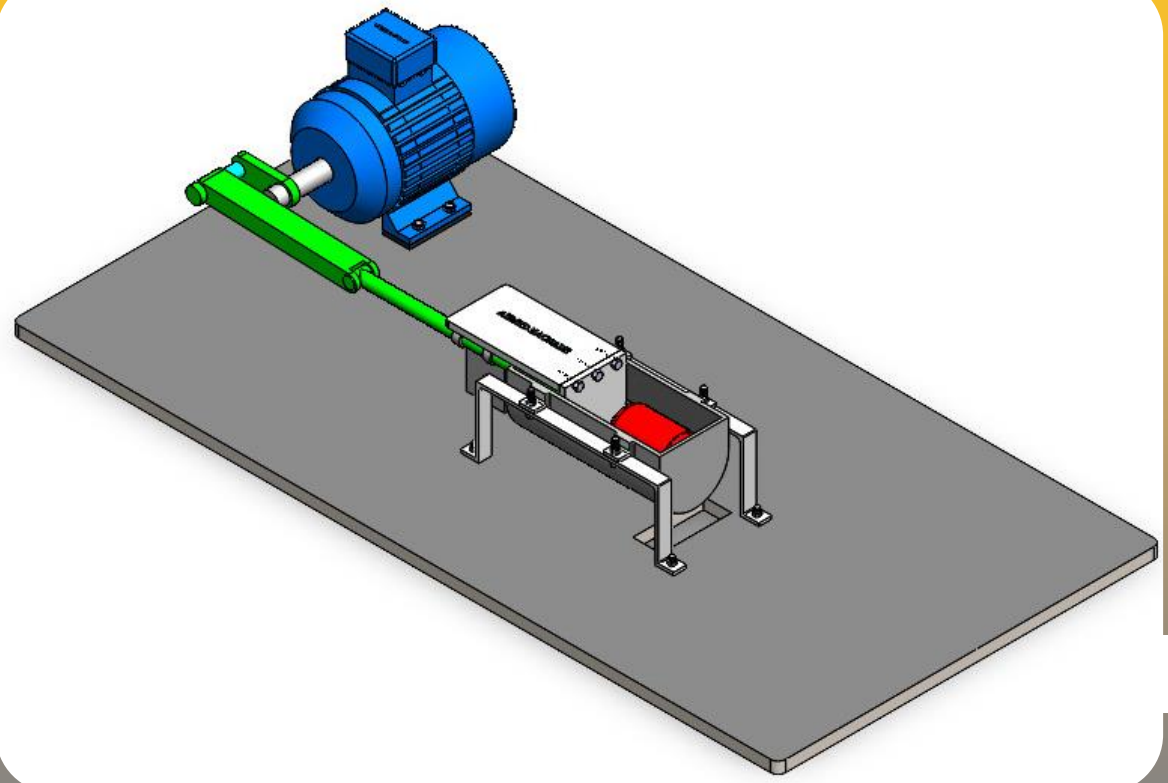


Description

Study and modeling of the suspension system to improve ride comfort and vehicle stability. Includes analysis of dynamic behavior, and real-world performance.

Car Suspension System

Manufacturing & Production Projects

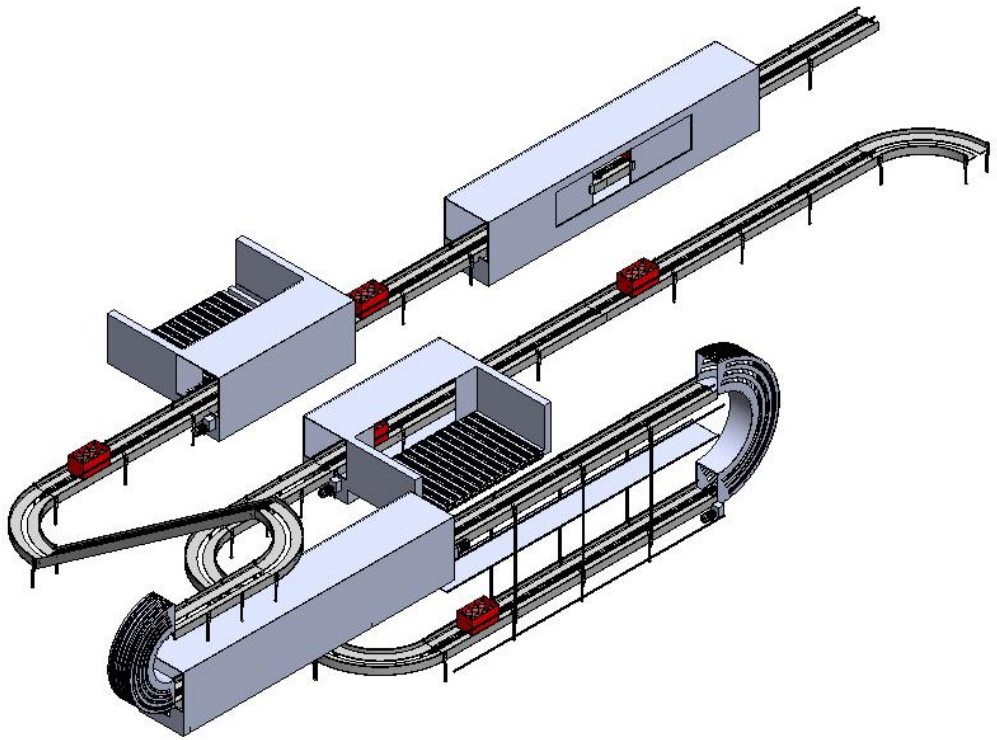


Description

Design and development of a mechanical system for crushing aluminum cans to reduce volume and facilitate recycling. Includes structural design, force analysis, and compression mechanism.

Can Crusher

Manufacturing & Production Projects



Description

Modeling and optimization of a glass bottle production line for the soft drink industry. Includes analysis of machinery, production flow, and quality parameters.

Soda Glass Bottle Production Line

Manufacturing & Production Projects

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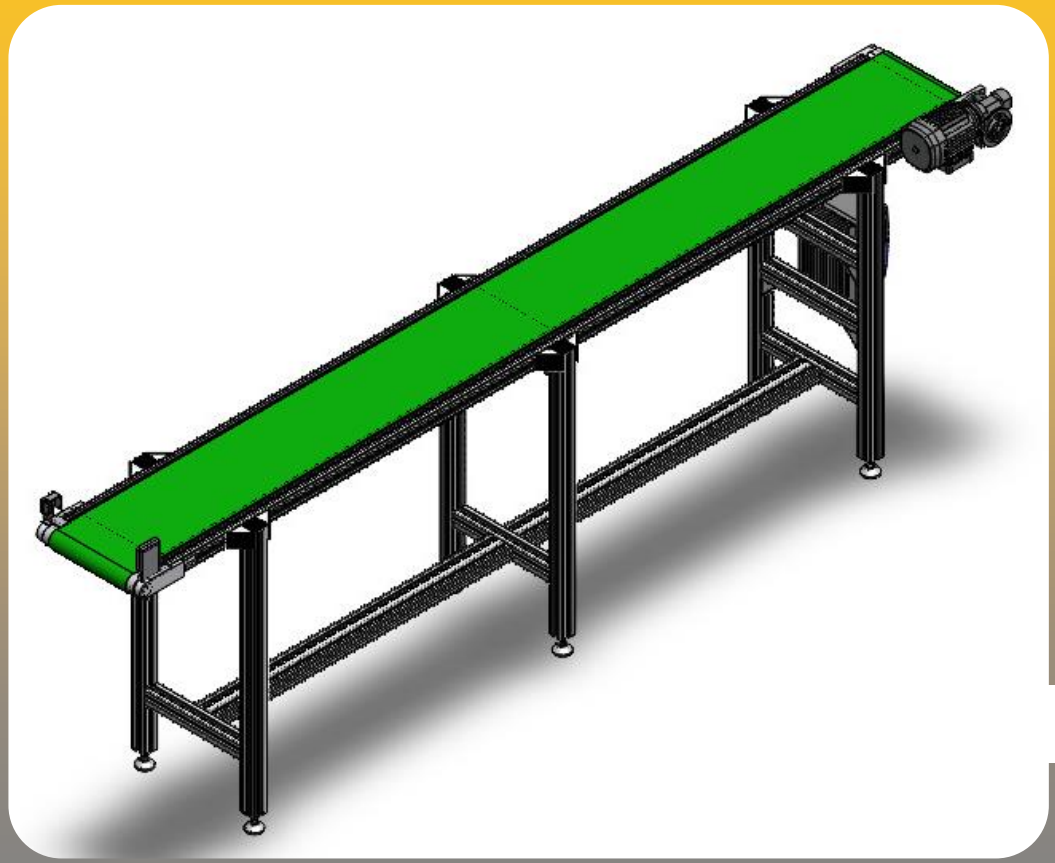
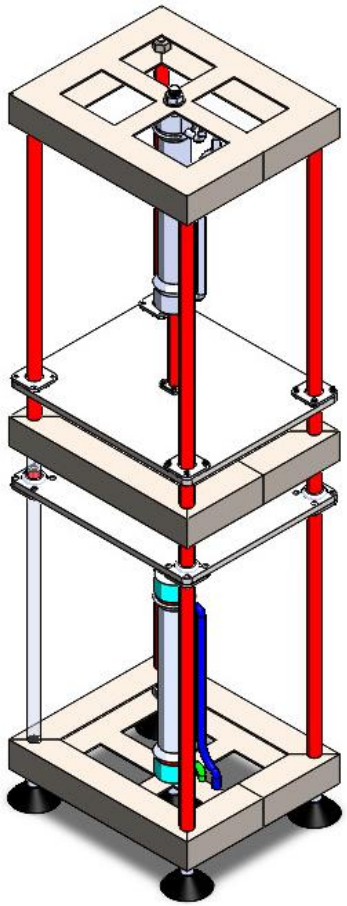


Description

Design of a belt conveyor for industrial product transportation. Includes structural analysis, drive system, and load capacity evaluation.

Belt Conveyor

Manufacturing & Production Projects

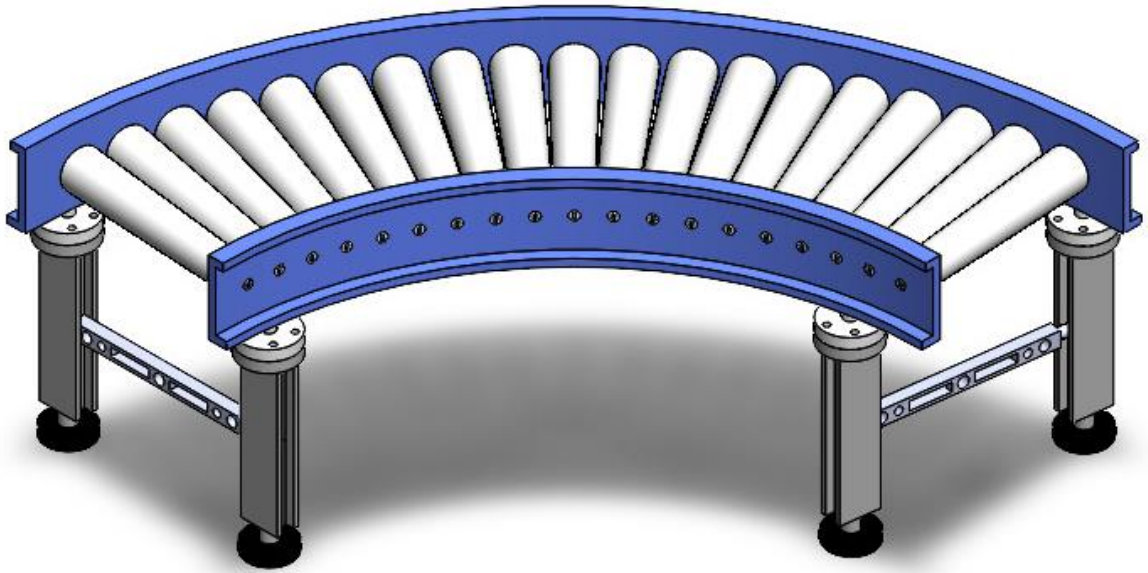


Description

Design of a mechanical press for stamping and forming metal parts. Includes structural design, actuation mechanism, and force parameters.

Press Machine Project

Manufacturing & Production Projects

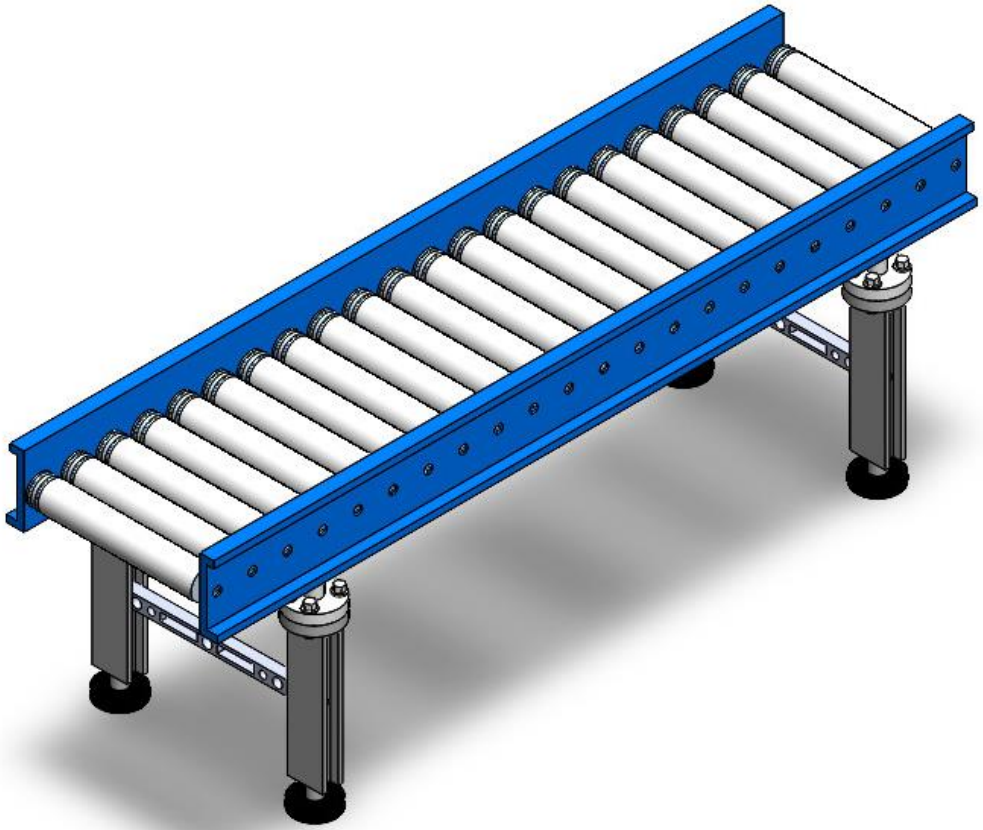


Description

Design of a roller conveyor enabling a 90° direction change in a production line. Includes smooth transfer optimization.

90° Roller Conveyor

Manufacturing & Production Projects



Description

Development of a roller conveyor enabling a full 180° rotation to optimize space in production lines. Includes mechanical stress analysis.

180° Roller Conveyor

Reverse Engineering Projects

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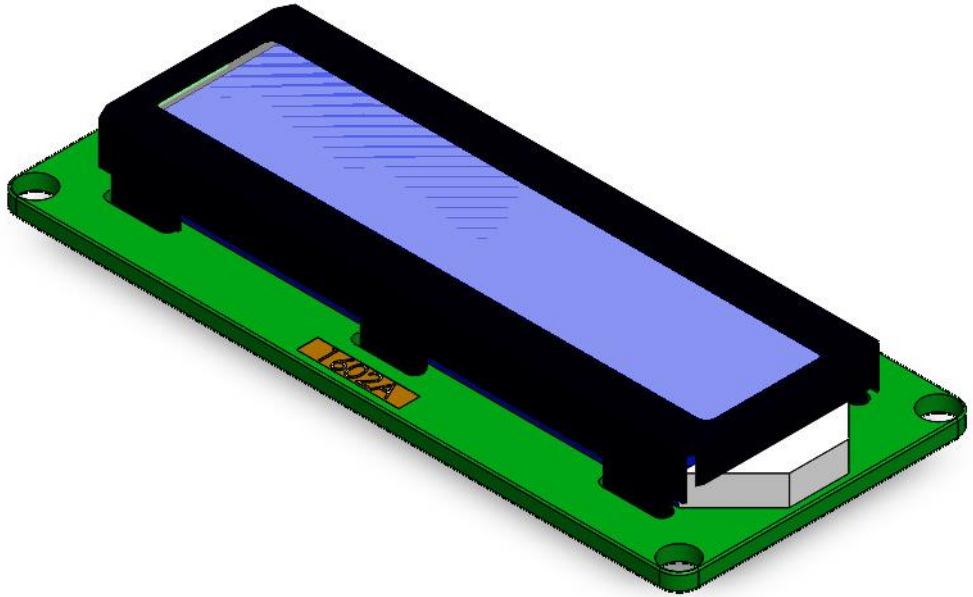

Description

Reverse engineering of a 1602A LCD display to understand its wiring diagram, input/output signals, and functionalities. Includes analysis of internal components and communication protocol.

1602A LCD Display

Reverse Engineering Projects

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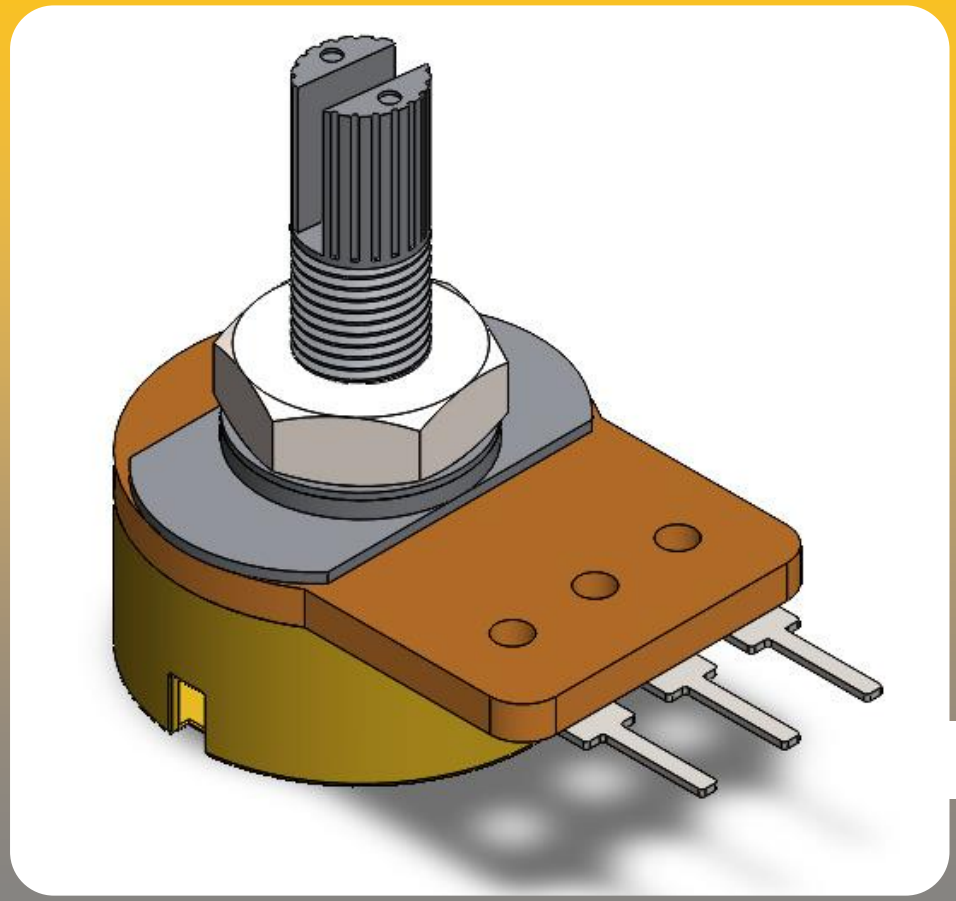


Description

Study and disassembly of a B5K potentiometer to analyze its internal structure, resistance variation mechanism, and applications in electronic circuits.

B5K Potentiometer

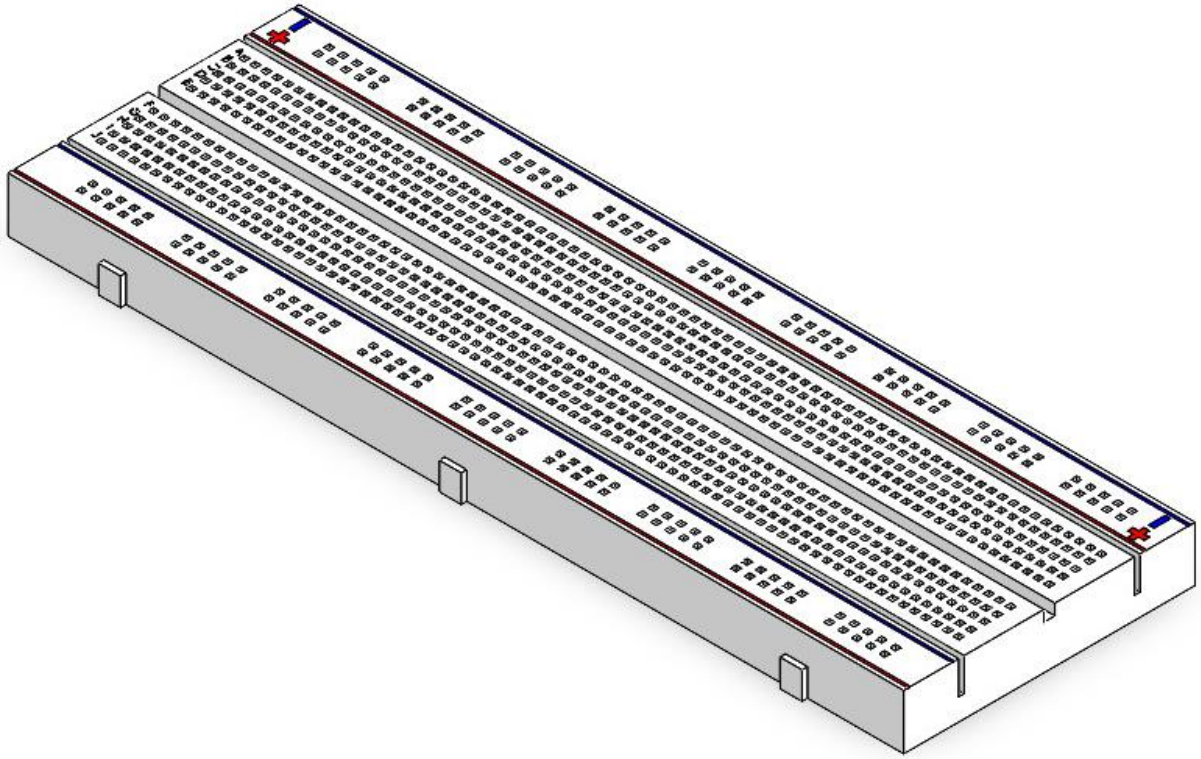
Reverse Engineering Projects

Description

Mechanical and structural analysis of a Bic pen to understand its design, materials, and assembly process.

Bic Pen

Reverse Engineering Projects

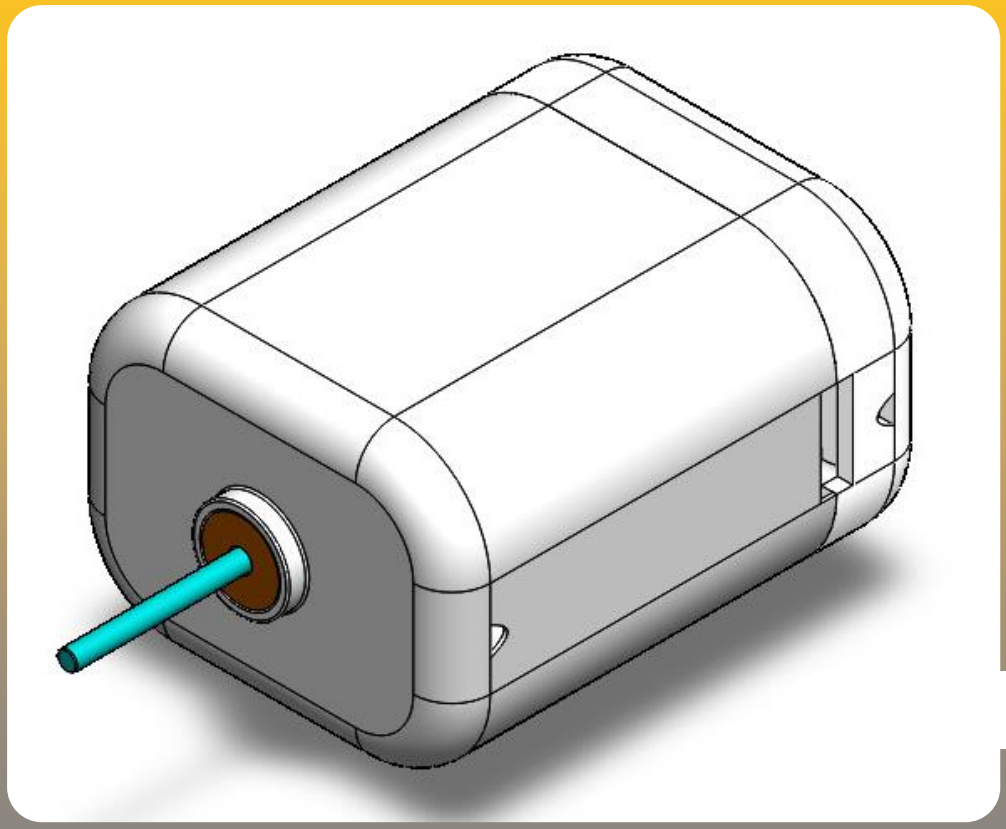


Description

Reverse engineering of a breadboard used for electronic prototyping, including study of its internal structure and electrical connections.

Breadboard

Reverse Engineering Projects



DC Motor

Description

Disassembly and analysis of a DC motor to study its components, electromechanical operation, and performance characteristics.

Reverse Engineering Projects

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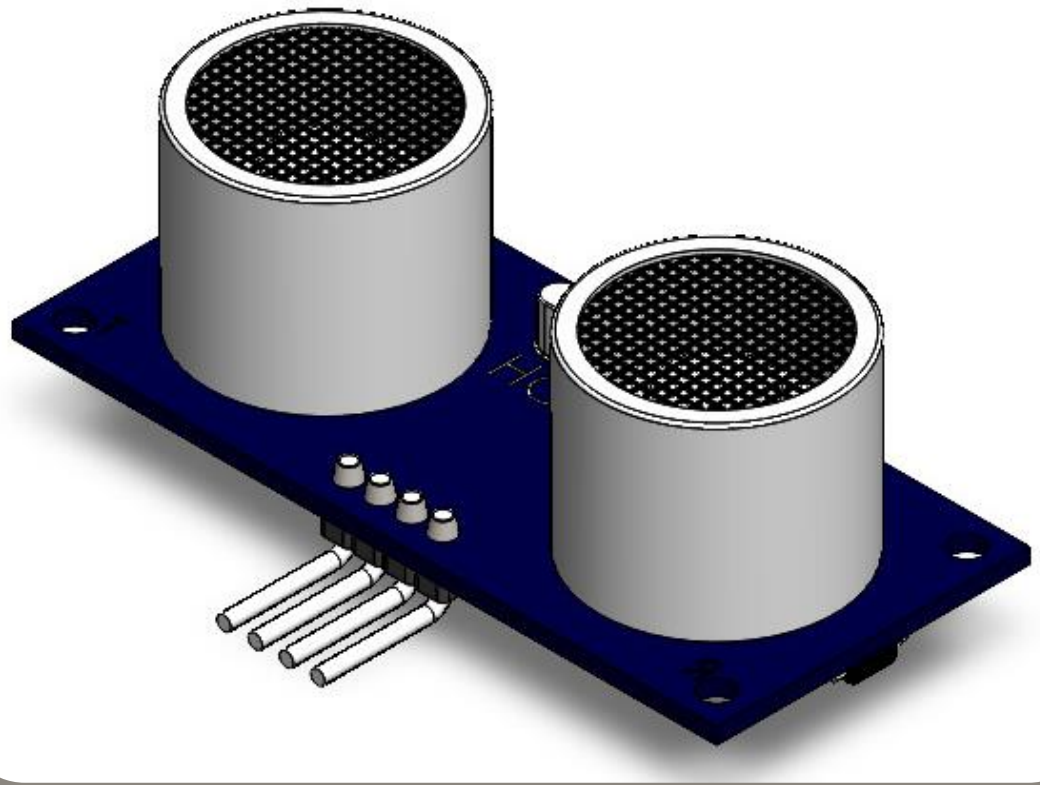


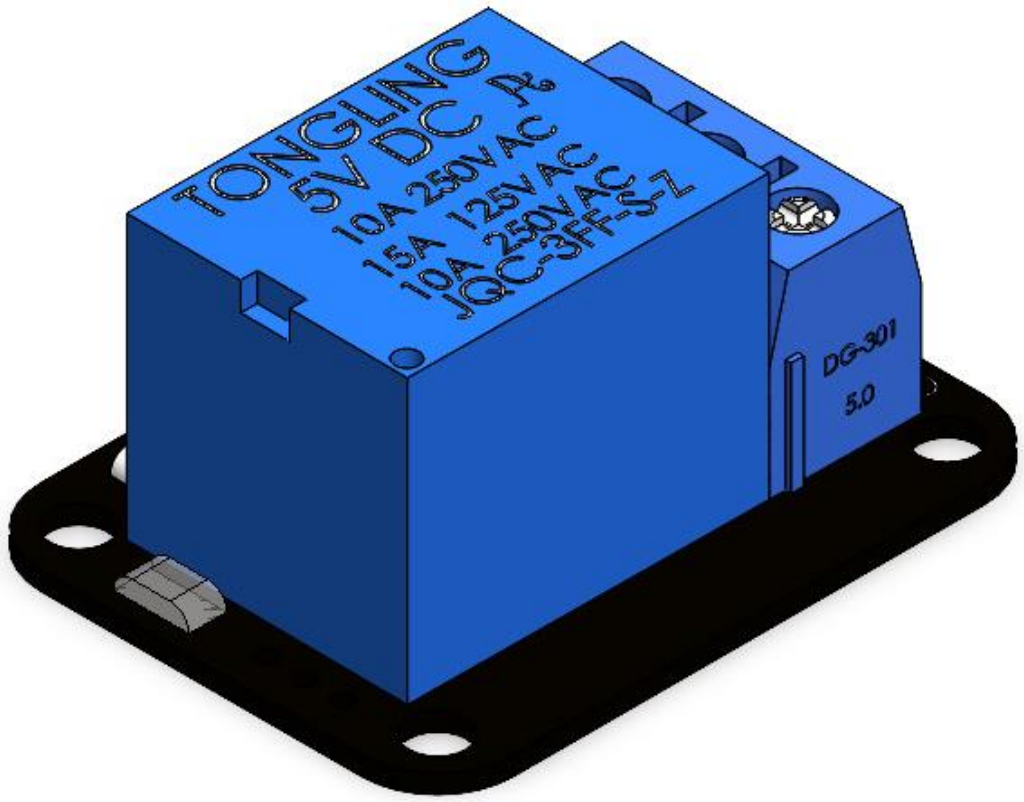
Description

Study of the HC-SR04 ultrasonic sensor to understand its distance measurement principle, internal components, and communication interface.

HC-SR04 Ultrasonic Sensor

Reverse Engineering Projects

SOLIDWORKS

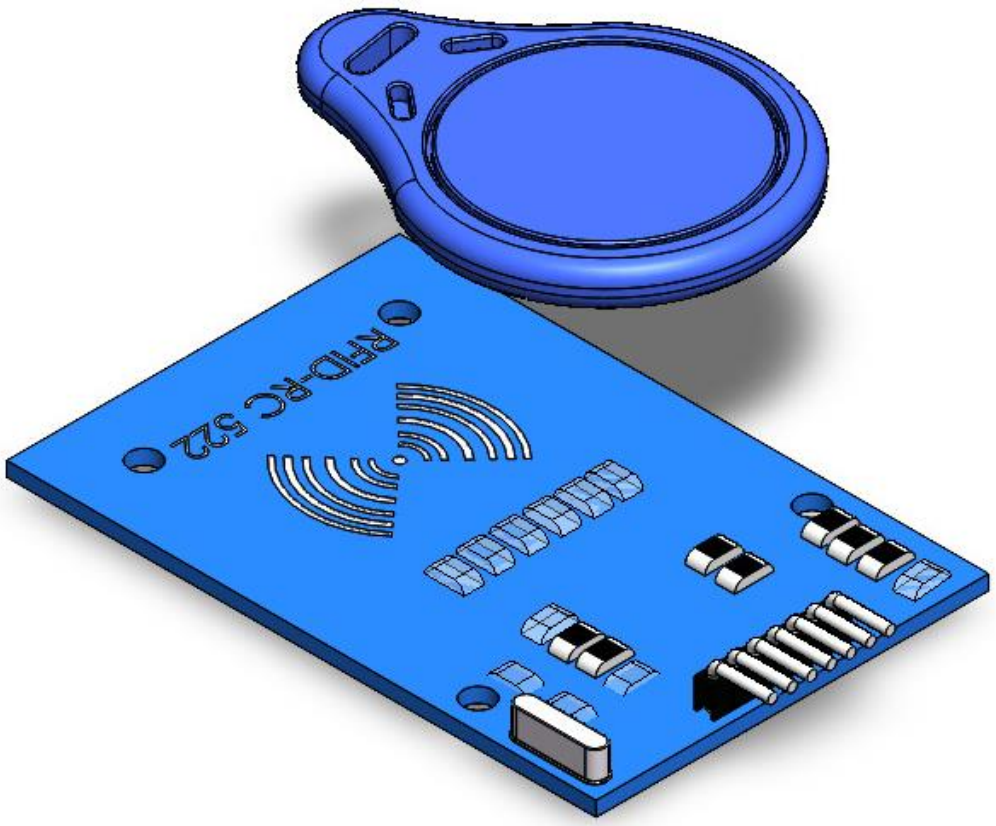


Description

Internal analysis of a JQC-3FF-S-Z relay to study its switching mechanism, electromagnetic coil, and applications in automation.

JQC-3FF-S-Z Relay

Reverse Engineering Projects

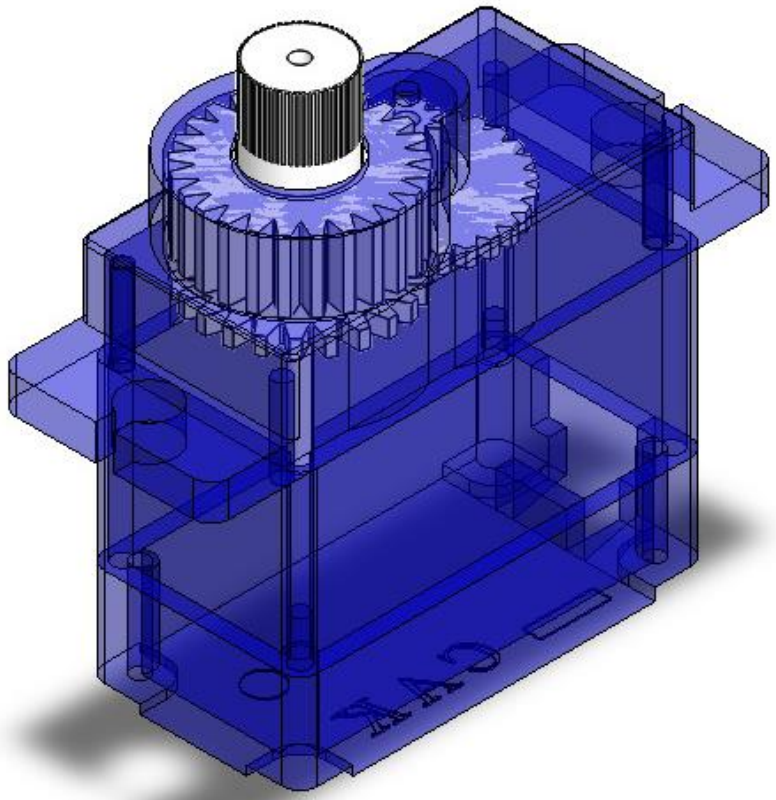


Description

Reverse engineering of the RFID-RC522 module to understand contactless card reading/writing, communication protocol, and integrated components.

RFID-RC522 Module

Reverse Engineering Projects



Description

Study of a C90 servo motor to analyze its position control, internal gearing, and applications in robotics and automation.

C90 Servo Motor

Reverse Engineering Projects

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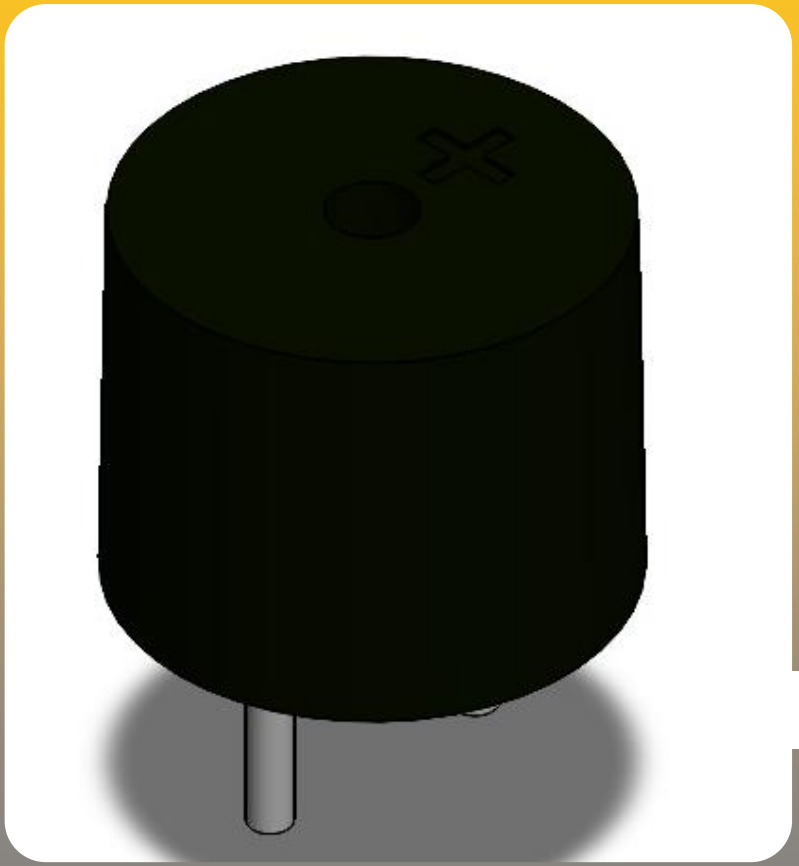
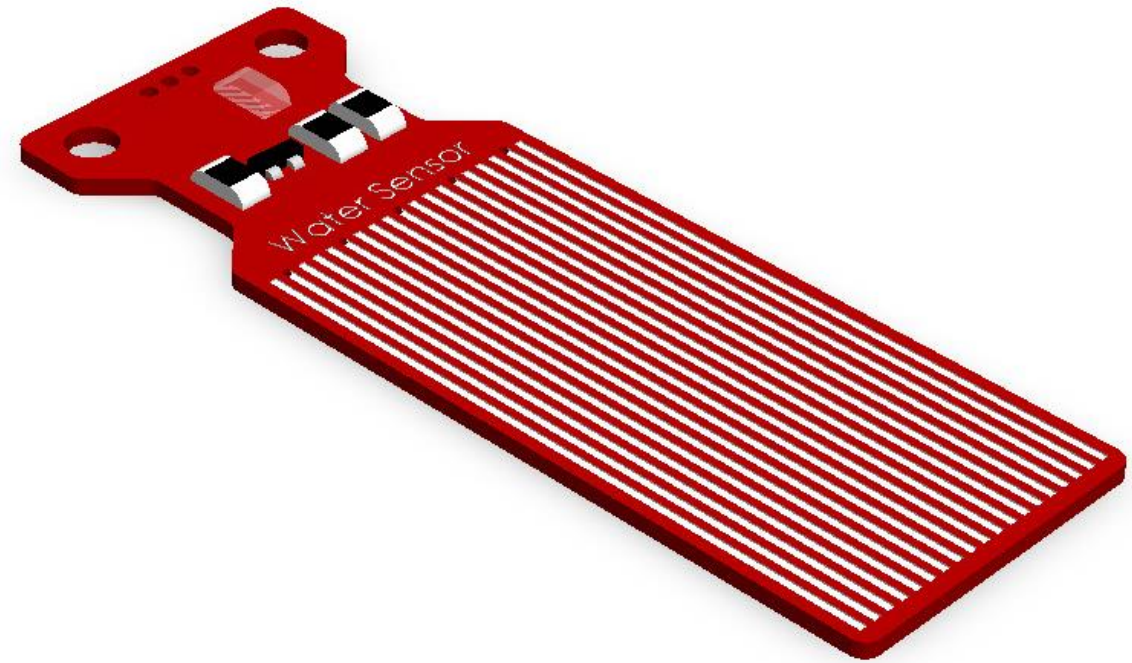


Description

Analysis of a sound sensor and its connection pins to understand audio signal detection and integration into electronic circuits.

Sound Sensor & Pins

Reverse Engineering Projects

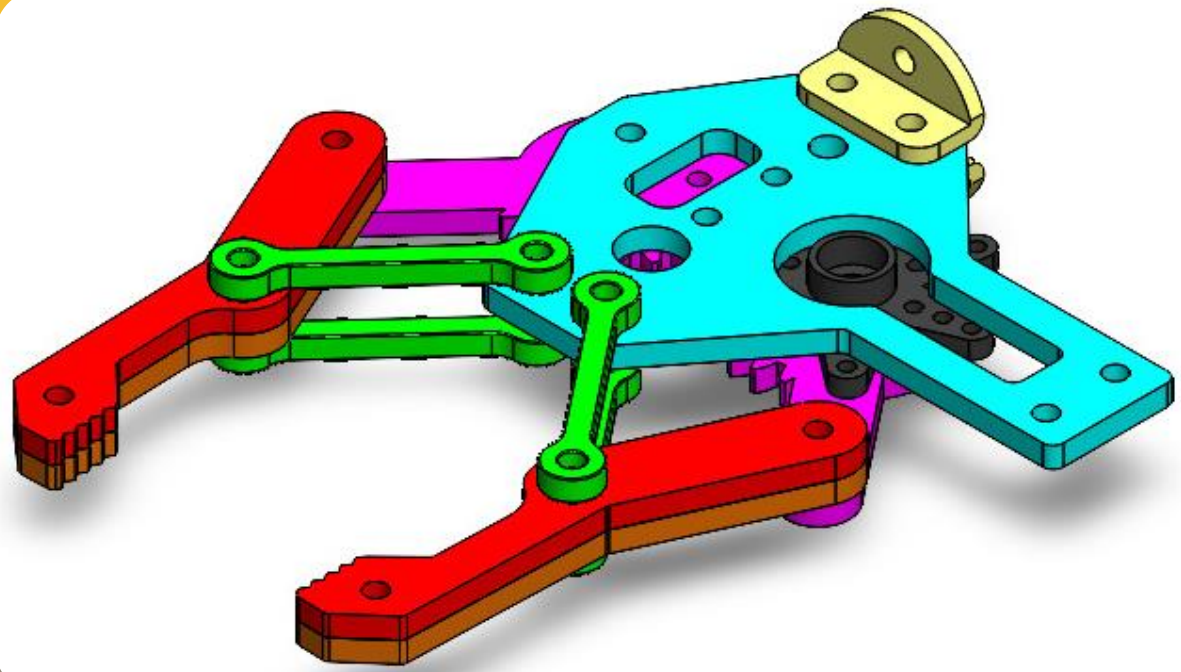


Description

Study of a water sensor to understand its principle of moisture or level detection, and its applications in home automation and industry.

Water Sensor

Robotics Projects

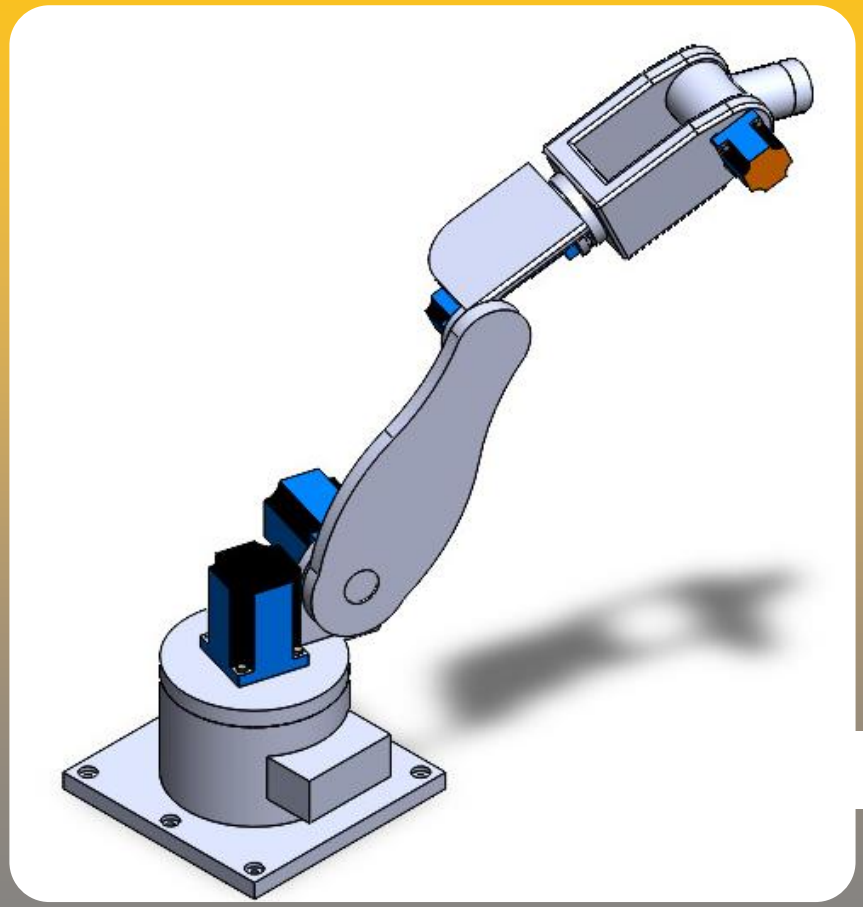


Description

Design and development of an articulated robotic hand capable of performing precise, human-like movements. Includes study of finger mechanics, actuators, and motion control systems.

Robotic Hand

Robotics Projects

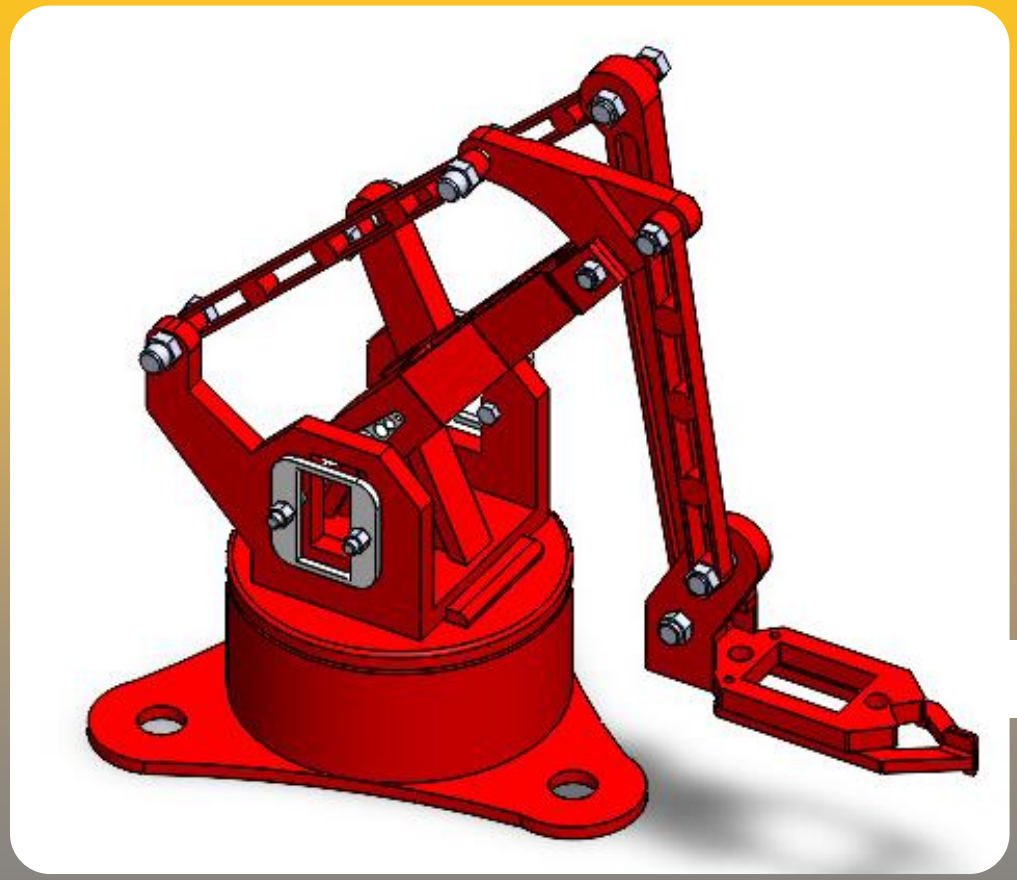


Description

Development of a robot equipped with a stepper motor for precise positioning and programmed control. Includes analysis of the drive system, electronic control, and potential applications.

Robot with Stepper Motor

Robotics Projects

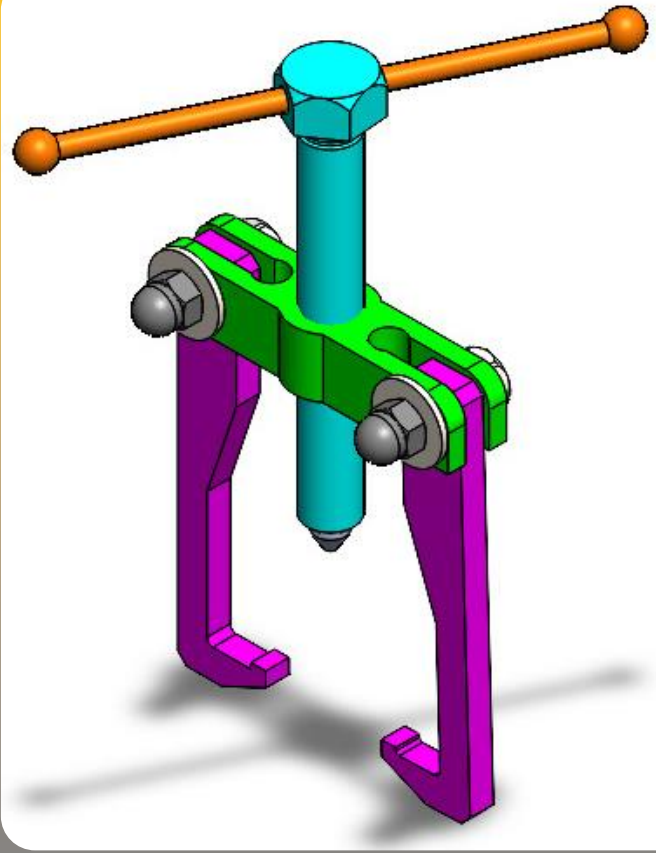


Description

Design and modeling of a robotic arm mounted on a mobile base, enabling object manipulation within a given environment. Includes kinematics study, sensors, and control system.

Mobile Robotic Arm

Sketch-to-CAD Conversion Projects

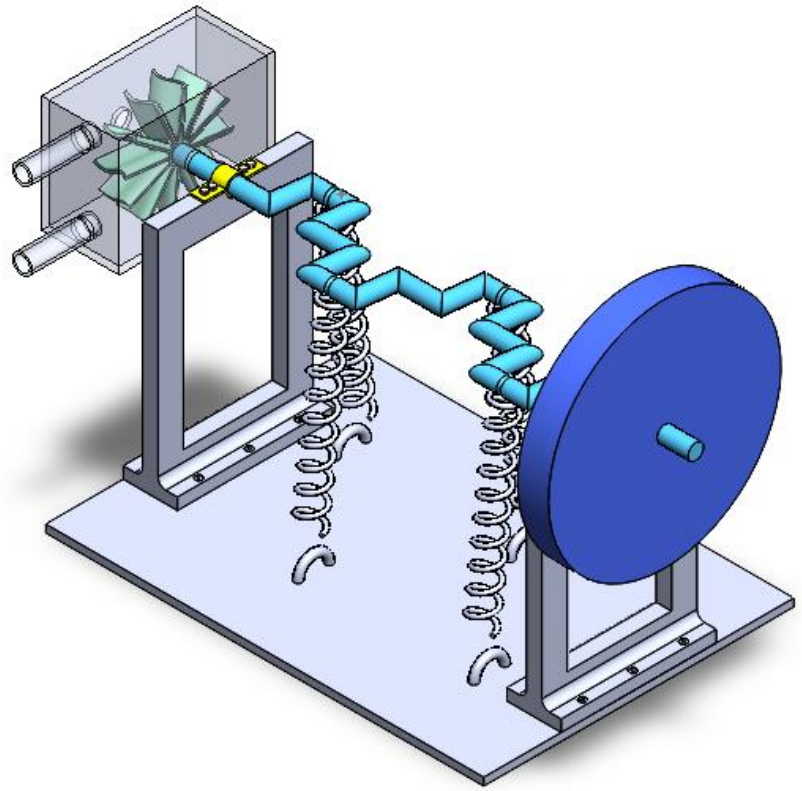


Description

Conversion of a technical sketch into a 3D CAD model of a mechanical fastening component. Includes detailed modeling, dimensional analysis.

Fixer Component

Sketch-to-CAD Conversion Projects

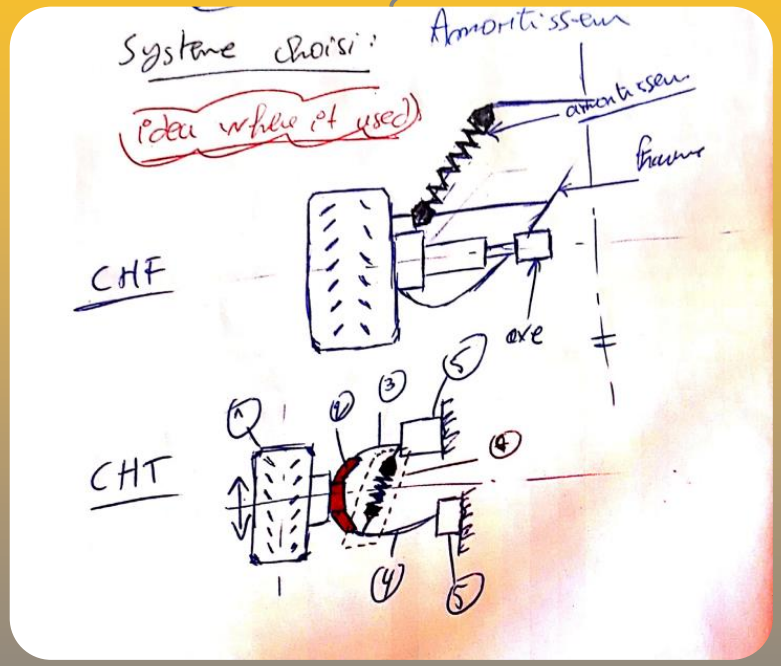


Description

Transformation of a conceptual sketch into a complete CAD model of a hydraulic generator. Includes study of components, hydraulic circuit, and integration into an energy system.

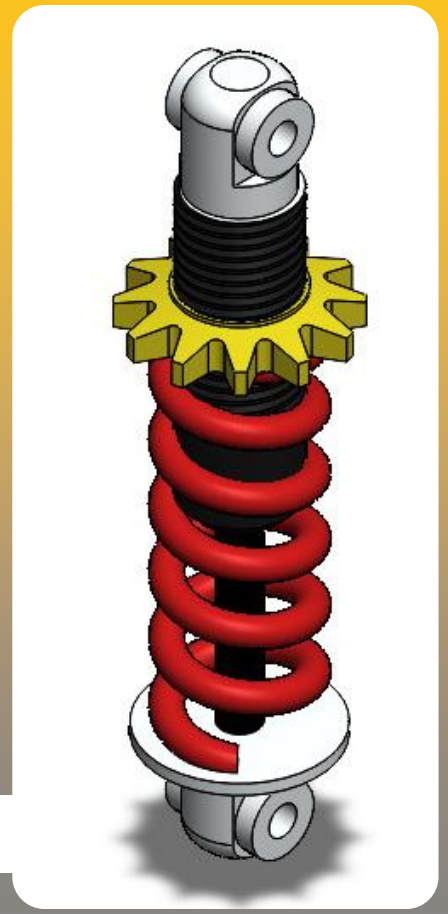
Hydraulic Generator

Sketch-to-CAD Conversion Projects



Description

Conversion of a preliminary sketch into a CAD model of a car suspension system. Includes analysis of parts, kinematics, and adaptation to vehicle constraints.



Car Suspension System

Ahmed Kachade

Mechanical Engineer

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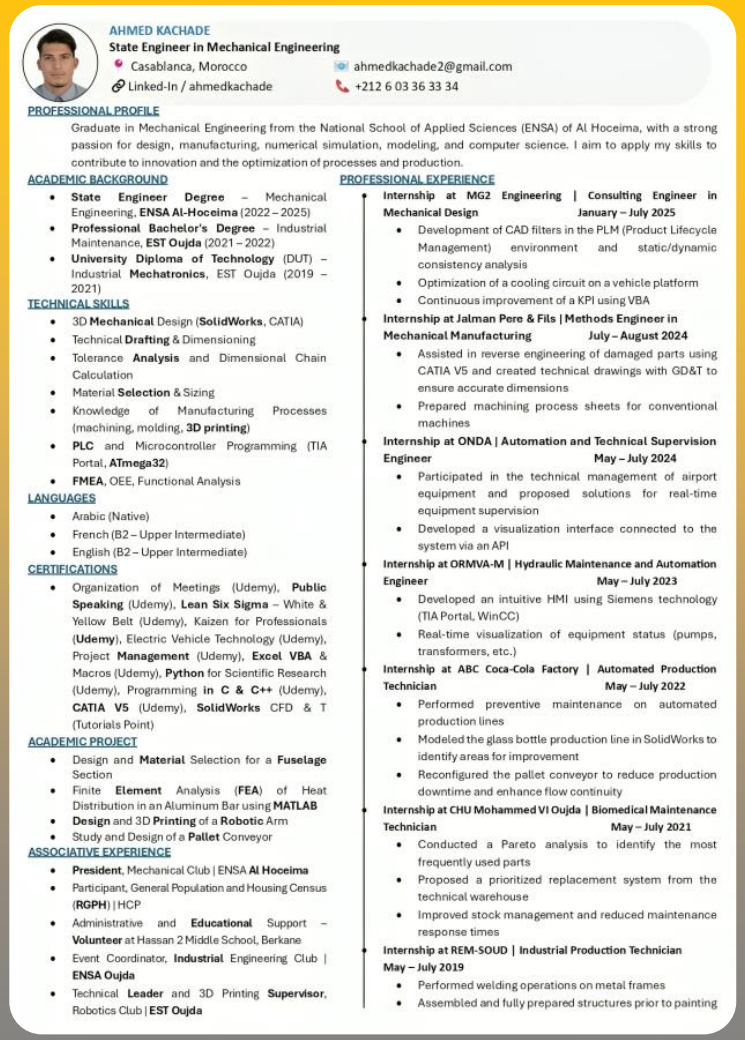
LinkedIn : Ahmed Kachade



AHMED KACHADE

State Engineer in Mechanical Engineering

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Linked-In / ahmedkachade | +212 6 03 36 33 34

PROFESSIONAL PROFILE

Graduate in Mechanical Engineering from the National School of Applied Sciences (ENSA) of Al Hoceima, with a strong passion for design, manufacturing, numerical simulation, modeling, and computer science. I aim to apply my skills to contribute to innovation and the optimization of processes and production.

ACADEMIC BACKGROUND

- **State Engineer Degree** – Mechanical Engineering, **ENSA Al-Hoceima** (2022 – 2025)
- **Professional Bachelor's Degree** – Industrial Maintenance, **EST Oujda** (2021 – 2022)
- **University Diploma of Technology** (DUT) – Industrial **Mechatronics**, EST Oujda (2019 – 2021)

TECHNICAL SKILLS

- 3D **Mechanical** Design (**SolidWorks**, CATIA)
- Technical **Drafting** & Dimensioning
- Tolerance **Analysis** and Dimensional Chain Calculation
- Material **Selection** & Sizing
- Knowledge of Manufacturing Processes (machining, molding, **3D printing**)
- **PLC** and Microcontroller Programming (TIA Portal, **ATmega32**)
- **FMEA**, OEE, Functional Analysis

LANGUAGES

- Arabic (Native)
- French (B2 – Upper Intermediate)
- English (B2 – Upper Intermediate)

CERTIFICATIONS

- Organization of Meetings (Udemy), **Public Speaking** (Udemy), **Lean Six Sigma** – White & Yellow Belt (Udemy), Kaizen for Professionals (**Udemy**), Electric Vehicle Technology (Udemy), Project **Management** (Udemy), **Excel VBA** & Macros (Udemy), **Python** for Scientific Research (Udemy), Programming **in C & C++** (Udemy), **CATIA V5** (Udemy), **SolidWorks** CFD & T (Tutorials Point)

ACADEMIC PROJECT

- Design and **Material** Selection for a **Fuselage** Section
- Finite **Element** Analysis (**FEA**) of Heat Distribution in an Aluminum Bar using **MATLAB**
- **Design** and 3D **Printing** of a **Robotic** Arm
- Study and Design of a **Pallet** Conveyor

ASSOCIATIVE EXPERIENCE

- **President**, Mechanical Club | ENSA **Al Hoceima**
- Participant, General Population and Housing Census (**RGPH**) | HCP
- Administrative and **Educational** Support – **Volunteer** at Hassan 2 Middle School, Berkane
- Event Coordinator, **Industrial** Engineering Club | **ENSA Oujda**
- Technical **Leader** and 3D Printing **Supervisor**, Robotics Club | **EST Oujda**

PROFESSIONAL EXPERIENCE

- **Internship at MG2 Engineering | Consulting Engineer in Mechanical Design** **January – July 2025**
  - Development of CAD filters in the PLM (Product Lifecycle Management) environment and static/dynamic consistency analysis
  - Optimization of a cooling circuit on a vehicle platform
  - Continuous improvement of a KPI using VBA
- **Internship at Jalman Pere & Fils | Methods Engineer in Mechanical Manufacturing** **July – August 2024**
  - Assisted in reverse engineering of damaged parts using CATIA V5 and created technical drawings with GD&T to ensure accurate dimensions
  - Prepared machining process sheets for conventional machines
- **Internship at ONDA | Automation and Technical Supervision Engineer** **May – July 2024**
  - Participated in the technical management of airport equipment and proposed solutions for real-time equipment supervision
  - Developed a visualization interface connected to the system via an API
- **Internship at ORMVA-M | Hydraulic Maintenance and Automation Engineer** **May – July 2023**
  - Developed an intuitive HMI using Siemens technology (TIA Portal, WinCC)
  - Real-time visualization of equipment status (pumps, transformers, etc.)
- **Internship at ABC Coca-Cola Factory | Automated Production Technician** **May – July 2022**
  - Performed preventive maintenance on automated production lines
  - Modeled the glass bottle production line in SolidWorks to identify areas for improvement
  - Reconfigured the pallet conveyor to reduce production downtime and enhance flow continuity
- **Internship at CHU Mohammed VI Oujda | Biomedical Maintenance Technician** **May – July 2021**
  - Conducted a Pareto analysis to identify the most frequently used parts
  - Proposed a prioritized replacement system from the technical warehouse
  - Improved stock management and reduced maintenance response times
- **Internship at REM-SOUD | Industrial Production Technician** **May – July 2019**
  - Performed welding operations on metal frames
  - Assembled and fully prepared structures prior to painting

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