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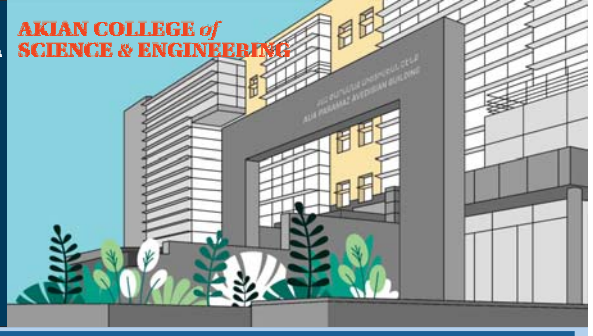


Reverse Engineering a Remote Control Toy Car

Authors: CAM class of 2023

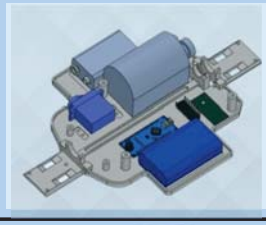
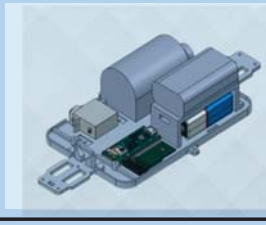
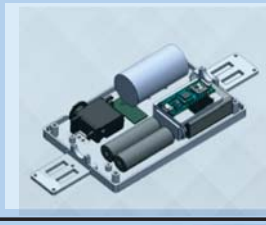
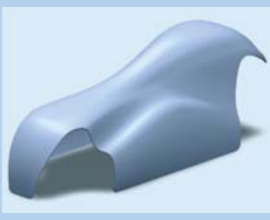
Akian College of Science and Engineering

Software: Solidworks Year: 2023

Introduction

The goal of this project was to reverse engineer an RC car, gaining a deep understanding of its components and technologies of their production and leveraging that knowledge to redesign and fabricate new components that would enhance the capabilities of the car. The solutions focused on the chassis, tires, and cover of the car. The class was divided into three groups that were assigned to design each of those components from scratch. The best solutions were selected for the implementation. The original car is shown on the picture on the right.

Project Milestones

Milestone 1: The groups were assigned to re-design and 3D print the car wheel. They were provided with 3D scan data of the original tire, which served as a reference for their design. During this stage, students worked with two types of materials: TPU for the tire and ABS for the rim. The students scaled the wheel to ensure that the car could be applicable for a cargo delivery.			
Milestone 2 The teams were assigned to create a 3D model of the modified chassis for the RC car. Using the part list provided from their Mechatronics project, the teams prepared the component layout and modified the initial chassis to accommodate all the new components. Accurate measurement of the component sizes and their proper placement on the chassis were crucial at this stage of the project.			
Milestone 3 After the chassis and tires were manufactured, the next stage was to design the cover for the car. Each team needed to design and prepare a composite cover for the mini car. Once the design was finalized, molds of the covers were created, followed by the composite shelling process. The covers were then cut, refined, and painted (optional). Different composites were used by each group, resulting in covers with different strengths and ensuring a wider range of usage.			
The Result			

Work process

Static

Dynamic... maybe too dynamic.

Scan to see!