



# 3D Model Generator for Car in Python

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# Agenda

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# Problem Statement & Objective

## Problem Statement:

Creating 3D models of car components like spoilers and brake discs manually requires domain knowledge, CAD skills, and time. There is a need for a quicker, AI-driven solution for prototyping these parts based on minimal user input.

## Objective:

Create a user-friendly app that allows users to generate **realistic 3D models of spoilers and brake discs** by providing basic dimensional inputs. The app will use **AI** and **Generative AI** to make the process quick, accessible, and highly realistic.



# Overview

This app allows users to generate **realistic, rotatable 3D models** of car spoilers and brake discs. By entering basic dimensional constraints (length, width, height), users can visualize and download a 3D model based on their input.

The model creation is powered by **AI** and **Generative AI** through integration with the **Meshy API** for 3D model generation.



# Solutions Approach

## How the App Works:

1. **User Input:**
  - Select part type (Spoiler or Brake) and specify dimensions (length, width, height).
2. **Model Generation:**
  - A descriptive prompt is created and sent to the **Meshy API** for 3D model creation.
3. **Polling & Refinement:**
  - The app polls the API until the model is ready and refines the texture to improve realism.
4. **Model Display:**
  - The final model is displayed interactively, and users can download the model file.



# Assumptions

- Focus on **spoilers** and **brake discs** as the first set of car parts.
- Users provide basic **dimensional constraints** (length, width, height).
- The **Meshy API** will be used to generate 3D models.
- Users are familiar with basic 3D concepts but do not need advanced knowledge.
- Models are delivered in **.glb format**.



# Code Demo

## Key Code Segments:

1. **User Input & Prompt Creation:**
  - Collect part type and dimensions.
  - Generate a prompt for 3D model creation.
2. **API Request to Meshy:**
  - POST request to generate the 3D model based on the prompt.
3. **Polling Task:**
  - Polls for task completion and refines the model once the initial generation is complete.
4. **Model Display:**
  - Display the generated model interactively using **WebGL** and **HTML**.



# Results

- **Realistic 3D models** generated with high accuracy based on user input.
- Users can interact with the model, rotating and zooming in to examine details.
- The ability to **download** the generated model in **.glb format** for further use or modification.

## Sample Outputs



Spoiler



Brake





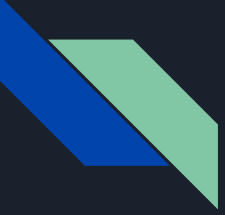
# Conclusion & Future Scope

## Conclusion:

The app successfully simplifies 3D model generation for car parts, making it accessible to users with basic inputs. The combination of Python and **Generative AI** provides realistic results, enhancing visualization and design workflows.

## Future Scope:

By expanding the range of supported parts, adding more customization options, integrating cutting-edge technologies like AR, and improving user interactivity and collaboration, the app can evolve into a more comprehensive tool for automotive design and prototyping.



Thank you!

