ADAS

CAR PROTOTYPE

ADAS TEAM

TEAM MEMBERS

Supervised By:

Prof.Dr. Mohammed Ebrahim
Prof.Dr. Mohammed Kamel
Dr. Tarek Abd Elbadia
Dr. Khaldon Taha

Abanob malak	95689
Kareem Ahmed	95635
Omar Mohamed	95668
Magdy Maged	91672
Esam Alaa	91679

AGENDA

TOPICS COVERED

Introduction

Design Objectives and Requirements

Ackermann Steering Design

Chassis Design and Materials

CAD Modeling Process

Next Steps and Revisions

Conclusion and Q&A

- **ADAS Project Overview**: Developing an ADAS prototype with core safety features such as adaptive cruise control, lane-keeping, and collision detection.
- **Car Prototype Design Task**: Design a functional prototype to support these features, focusing on stability and precision.

INTRODUCTION
CHALLENGE

Back to Agenda Page

AGENDA

TOPICS COVERED

Introduction

Design Objectives and Requirements

Ackermann Steering Design

Chassis Design and Materials

CAD Modeling Process

Next Steps and Revisions

Conclusion and Q&A

DESIGN OBJECTIVES

Enable accurate maneuvering and stability.	Ensure compatibility with ADAS sensors and modules.
• Incorporate Ackermann steering for controlled turns.	

DESIGN REQUIREMENTS

• Lightweight, durable materials.	• Dimensions suitable for lab testing.
◦ Mounting points for sensors and controllers.	

AGENDA

TOPICS COVERED

Introduction

Design Objectives and Requirements

Ackermann Steering Design

Chassis Design and Materials

CAD Modeling Process

Next Steps and Revisions

Conclusion and Q&A

ACKERMANN STEERING DESIGN

- **Ackermann Steering Overview**: Geometry that aligns each wheel with its turning radius, reducing tire wear and enhancing maneuverability.
- **Benefits:**
  - Improves handling during tight turns.
  - Reduces slippage and stress on wheels.

Source : commons.wikimedia.org

Back to Agenda Pag

AGENDA

TOPICS COVERED

Introduction

Design Objectives and Requirements

Ackermann Steering Design

Chassis Design and Materials

CAD Modeling Process

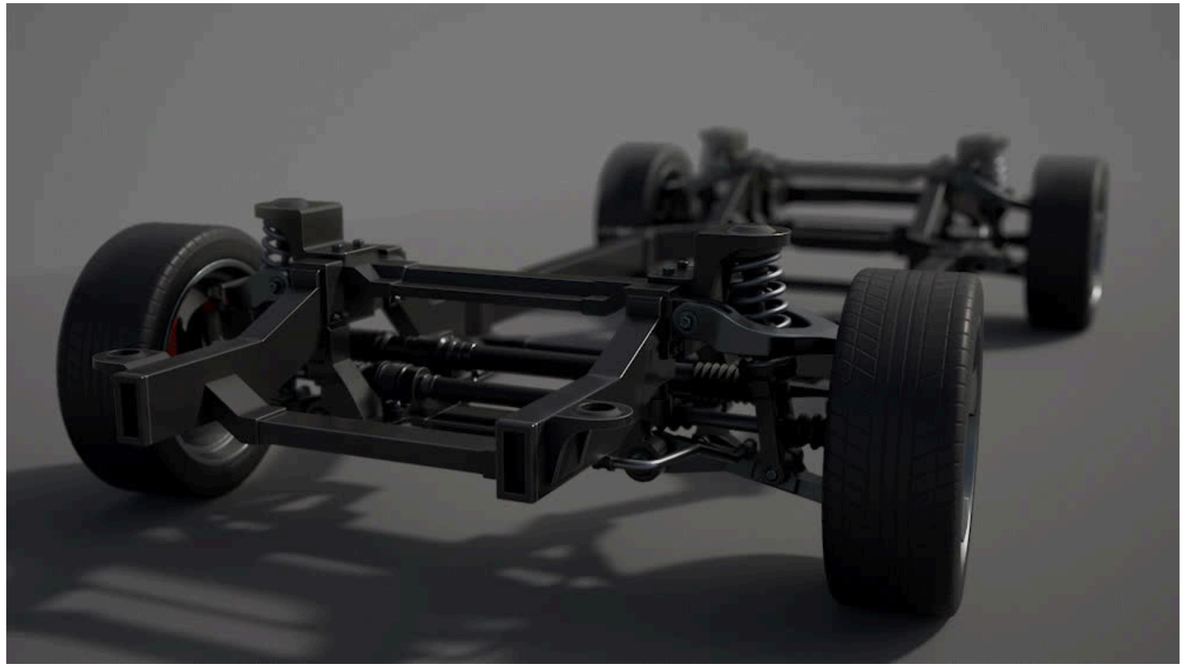
Next Steps and Revisions

Conclusion and Q&A

CHASSIS DESIGN AND MATERIALS

- **Material Selection:**
  - Lightweight materials (e.g., aluminum or carbon fiber) for ease of handling.

- **Design Choices:**
  - Streamlined body to reduce weight while maintaining space for electronics.



Source : Simon Mills

AGENDA

TOPICS COVERED

Introduction

Design Objectives and Requirements

Ackermann Steering Design

Chassis Design and Materials

CAD Modeling Process

Next Steps and Revisions

Conclusion and Q&A

AGENDA

TOPICS COVERED

Introduction

Design Objectives and Requirements

Ackermann Steering Design

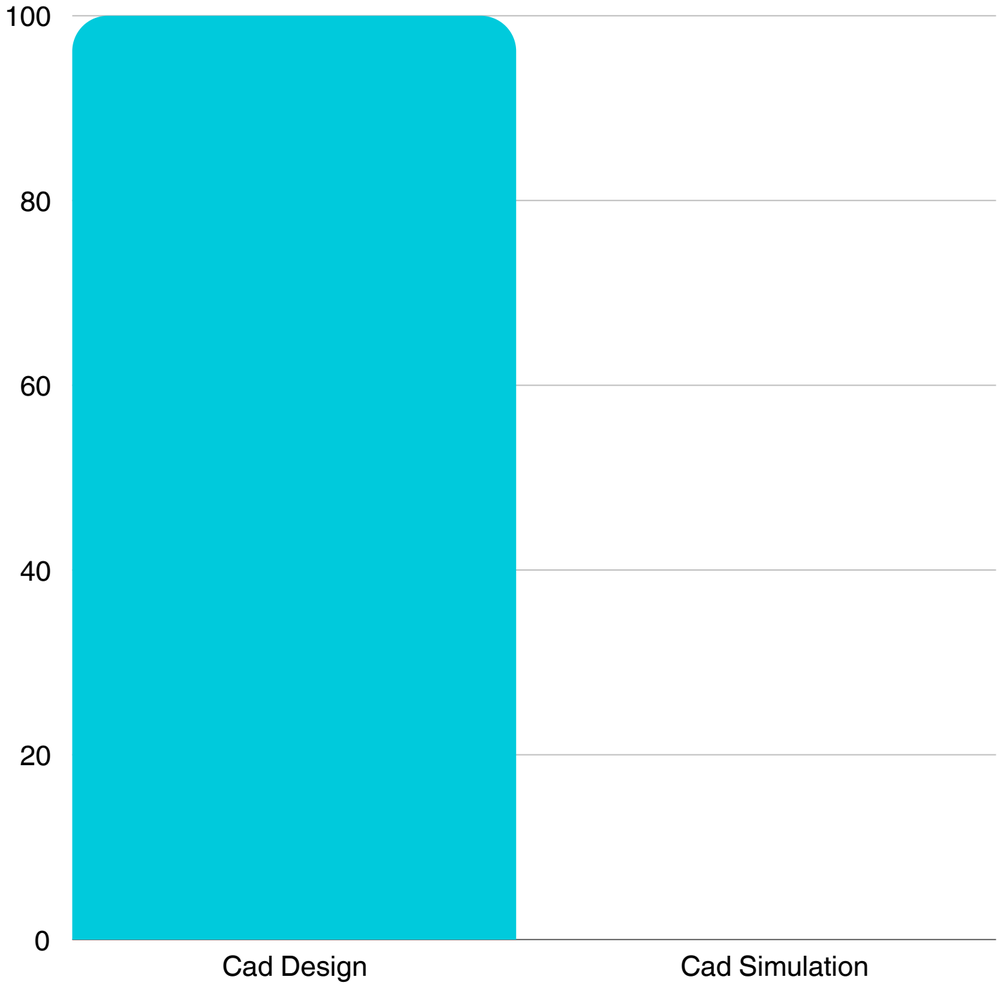
Chassis Design and Materials

CAD Modeling Process

Next Steps and Revisions

Conclusion and Q&A

USE THIS PAGE TO DESCRIBE THE COMPETITIVE LANDSCAPE.



CHASIS DESIGN

NEXT STEPS AND REVISION

- **Current Progress:**
  - Basic design and CAD model complete; preparing for simulation testing.
- **Next Steps:**
  - Conduct simulation tests.
  - Make adjustments based on test results.
  - Finalize the design for prototype construction.
- **Revisions:**
  - Plans to reduce weight by optimizing material usage.
  - Potential modular updates for easier sensor mounting.

Back to Agenda Page

AGENDA

TOPICS COVERED

Introduction

Design Objectives and Requirements

Ackermann Steering Design

Chassis Design and Materials

CAD Modeling Process

Next Steps and Revisions

Conclusion and Q&A

CONCLUSION AND Q&A

- Summary:
  - Successful design and modeling of chassis and steering mechanism.
  - Ready for simulation testing to refine and validate.
  - Moving forward with final revisions based on simulation feedback.
- Invite Questions:
  - “We welcome any questions or feedback on our approach and next steps.”

Back to Agenda Page