Group No12.

INFO 5900 SPECIAL PROBLEMS
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AUTONOMOUS CAR SIMULATOR TO SHOW HAZARDIOUS CONDITIONS USING 3D UNITY

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AUTOMATIC CAR SIMULATOR TO SHOW HAZARDOUS CONDITIONS USING 3D UNITY

Our goal is to create a detailed simulation of a driving simulator that takes into account information like steering angle, drag generation, drive force limits, and energy usage.

Our goals are to evaluate speed, drag (which slows the automobile down), and, in the other direction, apply gravity concepts to propel the truck forward in all kinds of different environments and conditions , all of which essentially depend on how the user is driving the truck

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Agenda

1. Title

2. Goals and objectives

3. 3.The future of autonomous vehicles

4. Modeling

5. Concept Design

6. Environmental Development

7. Simulating hazardous conditions

8. AI integration

9. Conclusion

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GOAL AND OBJECTIVES:

The main goal of this project is to provide user to drive a vehicle in various hazardous conditions. In this we will simulate all the various kinds of situations where the end user is going to use the module to learn and improve their skills.

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THE FUTURE OF AUTONOMUS VEHICLES

➢ As autonomous vehicles become more advanced, they will play an increasingly important role in our transportation infrastructure. However, before we can fully embrace this technology, we need to ensure that these vehicles can safely navigate hazardous conditions.

MODELING

➢ In this project we have designed a trail condition where the car detects the path to find a route out of it.

➢ This simulation will analyze user skills to drive the vehicle out of a scenario.

➢ The project is developed using Unity.

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CONCEPT DESIGN

During this stage, we worked on the car's layout and the necessary course for it to follow, as well as on all the 3D models that were created and integrated into the game. In this stage, a design concept is also created in a virtual setting.

ENVIRONMENTAL DEVELOPMENT

During this stage, Unity was used to create the environment in which the car must travel. This contains a high level of environment path detail that must reflect the various game situations.

SIMULATING HAZARDOUS CONDITIONS

➢ One of the biggest challenges facing autonomous vehicles is their ability to navigate hazardous terrain conditions. Off road, on road conditions can all obscure a vehicle's sensors, making it difficult for them to detect obstacles and other conditions in the terrain.

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AI INTEGRATION

Once the AI system is developed, players can test it in the game's testing mode. This mode allows players to see how their AI system performs in a variety of scenarios, such as heavy traffic, adverse weather conditions, and unexpected roadblocks. The game provides detailed feedback on the performance of the AI system, allowing players to refine and improve their programming skills.

CONCLUSION

In conclusion, the development of an autonomous car simulator using UNITY is a critical step towards ensuring the safety and reliability of autonomous vehicles. By creating virtual environments that simulate hazardous conditions, engineers can refine their designs and improve the performance of autonomous vehicles.

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Thank You

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