Controlling vehicle speed automatically based on the road speed limit

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Problem Statement

Excessive speeding poses a grave risk to Saudi citizens, increasing fatalities. The Adaptive speed limiter automatically restricts vehicle speed according to road limits, offering safer roads. Unlike SAHER, it grants control over maximum vehicle speed.

Constraints

- **Government Regulations:** The laws, standards, & procedures for implementing the idea shall be went through many government disciplines. Each phase through the implementation of this idea shall be accepted by the government.
- **People's Acceptance:** This might have an impact on our project especially when it comes to applying this project as a punishment.
- **Manufacturing Policy:** Editing some internal features in the car will lead to a loss of the assurance that is driven by the manufacturer himself

Target Specifications

- **Real-time Speed Limit Adjustment Software:** Monitoring and adjusting vehicle speed limits.
- **Transmitter receiver:** Infrastructure for transmitting speed limit data to vehicles. Components: Sensors, transmitters, power supply.
- **Car substation:** Facilitates cost-effective and efficient deployment by minimizing the need for specialized hardware or vehicle-specific adaptations.

## Prototype Design
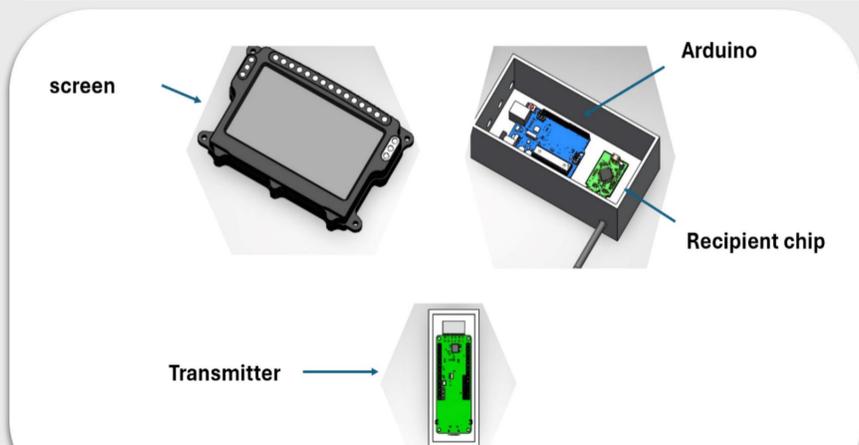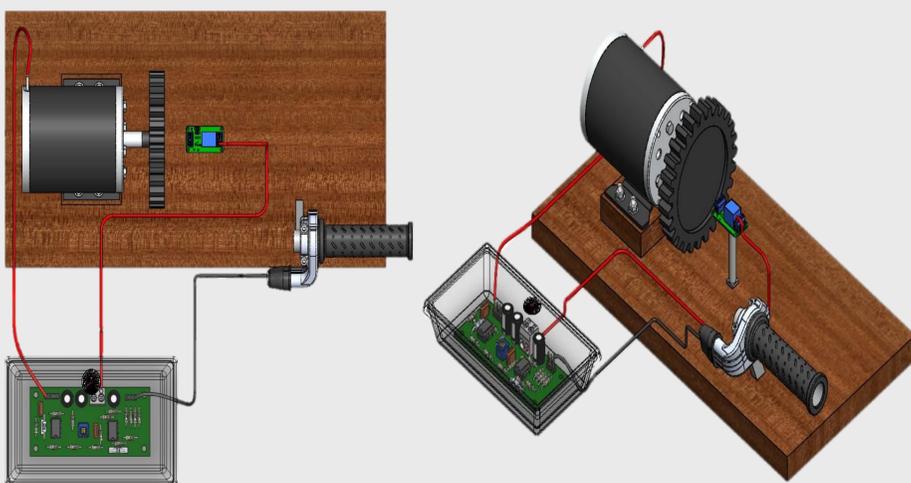
Testing / Validation
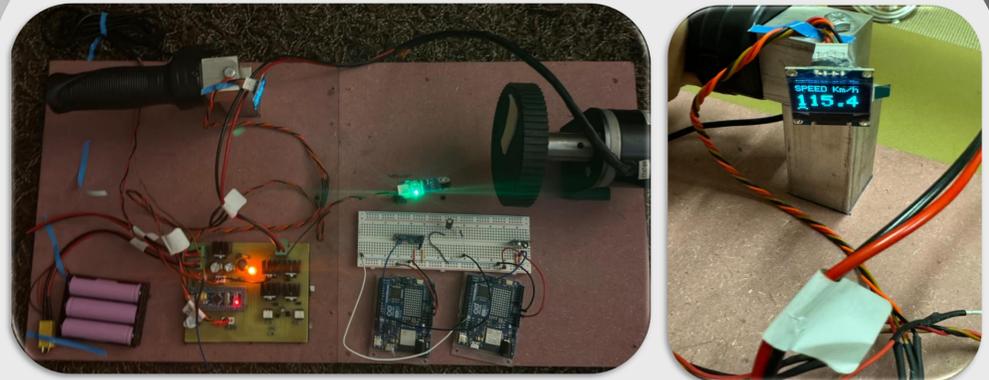
Project Impact

- **Welfare:** Implementing this project could lead to significant cost savings for citizens, as the total accident damage is estimated at 1,759,8851.
- **Environmental:** Controlling vehicle speed improves fuel efficiency, potentially reducing fuel consumption and emissions like particulate matter, carbon dioxide, and nitrogen oxides, supported by ICCT research.
- **Public Health:** Lower vehicle speeds can decrease air pollution, benefiting public health by reducing respiratory and cardiovascular problems and premature death, as per the EPA.

Real Sample Feedback:

How far would be the positive potential impact of our project?
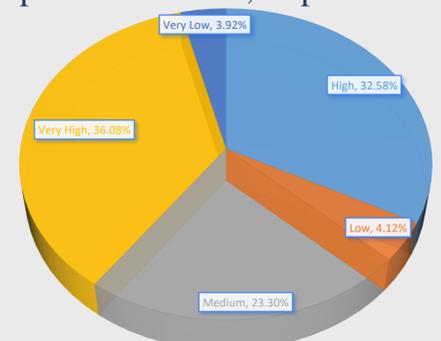
Conclusions

The development of our speed control system represents a significant step forward in addressing the challenges of road safety and traffic management in the Kingdom of Saudi Arabia. By focusing on saving lives, reducing economic losses, and enhancing driver behavior, our project aims to make meaningful contributions to the well-being and prosperity of the nation. Car accidents reduction will be 28.5 % from the total car accidents, which will lead to save the cost by 33,652,000,000 SR from the gross domestic product.