It appears that past research has shown pedestrians to be at fault in 80% of crashes involving vulnerable road users (VRUs). On the other hand, if VRUs have the knowledge that autonomous vehicles (AVs) are more safely operated, this would lead to improved confidence and overall quality of life.

Thus the interactions of AVs are a justified source of skepticism and hinder the onset of AVs.

Major limitations of AVs include accurate navigation, efficiency and reliability issues, as well as the absence of a robust legal framework; lack of social acceptance is a factor as well.

VRUs are not yet critical in present frameworks of human-machine interaction, which are rather based on social norms that have been established with human drivers controlling the vehicles. Thus the interactions of AVs and VRUs are not yet critical to see how different levels of automation will affect the interaction between AVs and VRUs?

Research Question: How different levels of automation will affect the interaction between AVs and VRUs?

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Conclusions

- Low-level (2 or less) automation-ADAS technologies provide positive impacts on road safety.
- In automation levels of 3 or higher, there is still a lot of uncertainty when trying to predict AV-VRU interactions from the present state of affairs.
- The exact handling and overall AV performance under different conditions such as weather, road class, lighting, traffic conditions etc. will be dependent on their programming.
- VRU-AV interaction can happen independently of all these conditions and several different outcomes will be observed, at least during the initial phase of full automation.
- There exist considerable knowledge gaps and lack of analyses of some of the existing VRU categories (road users with mobility impairments).
- It is obvious that from a road safety perspective, there can be no hard evidence until AVs roll out of the factory and operate on real-world conditions.

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Summary

- Recent technological advancements have led to a race in autonomous vehicle (AV) developments.
- One of the issues that is most critical when considering the circulation driverless AVs in roads is their interaction with vulnerable road users (VRUs).

The present research is a review study aiming to investigate the issues of interaction between AVs and VRUs.

A literature review from recently published studies worldwide was conducted for assessing the available technologies and locating possible future trends.

2 investigated sides:
- the side of AVs and automation technology overall,
- the VRU side, such as trust and acceptance.

Research Question:
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