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ABSTRACT

Chain accidents, where multiple vehicles collide in a sequence, are a common and devastating type of road accident. This study proposes a novel approach to prevent chain accidents by leveraging Vehicle-to-Vehicle (V2V) communication and automatic braking. Our system enables vehicles to share real-time information about their speed, position, and braking status with surrounding vehicles. Upon detecting a potential collision, the system triggers automatic braking in nearby vehicles, thereby preventing or mitigating the impact of a chain accident.

Simulation results demonstrate that our system can significantly reduce the frequency and severity of chain accidents. The proposed approach has the potential to improve road safety, reduce traffic congestion, and save lives. Future work will focus on implementing and testing the system in real-world scenarios.

Chain accidents often occur due to factors such as driver distraction, speeding, and inadequate following distances. Traditional safety measures, such as airbags and anti-lock braking systems (ABS), are designed to mitigate the consequences of an accident, but do not prevent the accident from occurring in the first place. V2V communication and automatic braking offer a promising solution to prevent chain accidents by enabling vehicles to share information and take proactive safety measures.

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