RAC Intellibus™: Australia's First Automated Vehicle Trial- Testing Safety Safely

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Abstract

Since the project's inception in 2015, RAC has been testing and evaluating a Level Four High Automation and fully electric shuttle bus. Having now launched a public on-road trial in August 2016, RAC's IntellibusTM takes passengers along a 2.8 kilometre route in South Perth. The Trial has three broad aims which seek to understand autonomous vehicle (AV) technology in a live environment and to consider their likely impact. This paper provides a summary of the Trial's three stage methodology as well as the findings thus far.

Background

Road injury is one of the largest causes of hospitalisation and death for Australians under 45 years of age, and serious injuries accounted for $27 billion per year or 18 per cent of Australia's total health expenditure. According to the Australasian New Car Assessment Program, or ANCAP, about 90 per cent of crashes on Australian roads currently involve some form of human error and the implementation of AV technology in vehicles is likely to alleviate the seriousness of injury and even death.

Autonomous vehicle (AV) technology is rapidly advancing, with vehicles becoming increasingly automated requiring less driver intervention. The reduction of human intervention in vehicle operation represents an opportunity to increase commuter safety, whilst enhancing mobility and reducing congestion . However, incorporating driverless vehicles into modern traffic systems and road design will present a number of challenges that require further research such as public perception, passenger safety, traffic flow, integration, and deployment .

Importantly, as an incremental innovation consumer adoption of AVs such as the RAC's IntellibusTM are facilitated by mere exposure to the innovation through contact and exposure of the general public to users Shih & Venkatesh, 2004). The RAC's IntellibusTM trial seeks to evaluate AV performance in a real world environment while increasing the exposure of the public to AV technology and thus influence discussion, perception and adoption of the technology.

Method

Invite members of the public to register and take part in an on-road Trial over a 12 month period where a condition of participation includes the completion of a post-ride feedback survey. This public stage involves open public testing on a fixed 2.8 kilometre route on the South Perth foreshore at reduced speed (15km/h). Each ride consists of 6 to 8 participants, who take a single 25 minute curated journey with a chaperone on hand to explain AV technology and control of the vehicle if necessary. Prior to the public launch, RAC undertook closed testing on a private track as well as closed testing on a public road- the staged and incremental complexity of the trial are planned in the near future.

Results

Initial results will be presented in relation to trial methodology and public perceptions of AV performance and safety in a real world environment. Discussion will focus on the future direction of the safe deployment of AV technology onto the Australia road environment and the importance of technology trials.

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