

Telemetry System For The Steering System*

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Abstract

The constant development of the automotive industry puts us on the verge of another technical breakthrough. Currently, vehicles are becoming more and more intelligent. They are not only supposed to support the driver, warn, or even prevent accidents, but more and more often, they are supposed to completely replace the driver in controlling the vehicle. This approach requires, not only, the modernization of existing vehicle subsystems, but their complete design from scratch. One of such systems is the steering system. So far, it assumed mechanical coupling between the steering wheel and the steered wheels. Nowadays, finding vehicles without electro-hydraulic steering or even electric steering is difficult. However, despite such significant progress, most cars still have mechanical coupling between the steering wheel and the wheels. The emergence of autonomous vehicles and the increasing automation of traffic control processes require a drastic change in vehicle design. One of them is using steering systems without mechanical coupling with Drive-by-Wire wheels, and the other equipping vehicles with an IT system capable of downloading and saving both locally in the vehicle and globally in an external vehicle data system.

The presented article presents preliminary research results in a project concerning developing a steering system without mechanical feedback using direct drives, specifically its part concerning the control and measurement system of such a system based on the ESP32 processor. The paper presented the initial tests of such system based on an ESP32 chip, and its implementation in the autonomous car was discussed.

Keywords: steering system, ESP32, autonomous vehicles