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Design of a Cruise Control System Prototype for the GT500's Experimental Aircraft

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Abstract: Experimental light sport aircraft (ELSA) is designed to fly recreationally. However, the GT-500 aircraft has the speed and range capability to fly long range cross-country flights. This type of aircraft does not come with an autopilot system and without it would create an increased sense of fatigue on the pilot, as a result can increase the likelihood of cockpit-error. The cost of most Commercial Off the shelf (COTS) options would cause a significant financial burden on the owner. For this reason, an affordable cruise control system has been designed to hold altitude and heading. This project focused on building a cost-effective prototype autopilot system for the GT-500 airplane using Arduino microcontroller and its peripheral components. A trade-off analysis between this system and the COTS option was performed to determine the best option that meets the sponsor's requirements. Our designed model will be 1/8 the price of the COTS model.

Keywords: GT500 aircraft, cruise control system, autopilot system

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