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Automated clutch system for left leg disabled persons

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The goal of this project was to build a device to effectively control the clutch of a manual transmission vehicle that can be used by left leg disabled people as well as others. The inspirations for this project include those who wish to be able to drive a manual transmission vehicle because of their interest in recreational driving or because they own one-of-a-kind car. Automatic transmission cars are generally expensive for them to afford. This system converts the existing manual transmission into semi-automatic transmission. The automated clutch operating system uses the existing clutch pedal mechanism system. By adding this system, the gears can be changed without operating the clutch pedal by the foot. In this project testing and research was done in several areas including the analysis of the electronic system present in the selected car and analysis of the clutch pedal depression. This leads to the design and fabrication of an ergonomic interface refining existing concepts to allow those without the use of their left leg to maintain full control of the clutch of a standard manual transmission vehicle. Some products offer control of the clutch pedal to the user by the means of a hand interface such as the 'Duck Clutch Control System of Elap UK' and the 'Alfred Bekker Manual Hand Clutch'. However, these products are expensive, invasive, and take away the full experience of driving a manual transmission of the car. In this project, we were able to design a clutch control system, which is fully automatic with reduced components and with a simple installation process. The system functions perfectly in all driving conditions such as starting the vehicle on a level road, starting the vehicle on a hill, descending a hill, and sudden braking on a traffic condition.

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