**FYP ONE-PAGE DESCRIPTION**

**Project Title:** Auto-Parking of vehicle by using supervised learning approach.

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**Abstract :**

When parking a car, it's critical to make sure the vehicle maintains a consistent approach to the parking spot, maintains a good heading angle, and avoids excessive line pressure losses. A supervised learning-based automatic parking model is proposed. A parking kinematics model will be created to calculate the various states of its movement. The car's autonomous parking will be attained through training, and a thorough examination of the many stages and scenarios in the parking process is provided. Multi-objective optimization and comfort, including safety, parking efficiency, and final parking performance, should be considered in automatic parking motion design. The majority of present research depends on parking data from skilled drivers or human previous knowledge. This project provides a model-based Neural Network approach that iteratively executes the data generation, data assessment, and training network to learn the parking policy of the data. We can mainly eliminate human experience and learn parking strategies autonomously and quickly using this technology. To achieve automatic parking, a DNN-based end-to-end parking algorithm is suggested. The first few layers of this DNN contain the general parking trajectory planning knowledge for all kinds of vehicles, while the last few layers of this DNN can be quickly tuned to adapt to various kinds of vehicles. The model may learn and accumulate experience from several parking attempts and then demand the ideal steering wheel angle at various parking spaces. Errors caused by path tracking can be prevented by using this end-to-end auto parking approach. Finally, a real-world vehicle test shows that the suggested strategy can achieve a better parking attitude than other methods.

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**Signature of Advisor**

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