

Design Report

FEEG6013 Group Design Project

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Autonomous Golf Caddy

Design and Manufacture of a Smart Autonomous Golf Caddy

Project Summary:

Design and manufactured a smart autonomous golf caddy, this project has four main objectives: an autonomous following system that follows the a golfer around the golf course independently while avoiding obstacles on the golf course; learn and record the golfer's performance to help improve the their golfing; suggest and release an optimum golf club based on data obtain on the golf course and has a user-interface that enables the golfer to communicate with the caddy for their needs. This project was intended to fulfil the client's request to showcase new potentials of smart autonomous golf caddy and commercialise it in the future.

A global obstacle avoidance through GPD tracking algorithm was developed and actuators were improved by installing new motors for the rear wheels and a swivel castor front wheel. The original golf bag is redesigned to the golf club storage and implement the release mechanism for the optimum golf club suggestive system. A touchscreen is also installed and a graphic user interface (GUI) was programmed to enable communication between the golfer and the caddy.

The caddy operates with new electronic circuitry, which includes a Raspberry Pi that acts as its mainframe and processor. This new concept of a smart autonomous golf caddy will help in improving a golfers performance by acting as an robotic coach and could also promote the sport to new talents.

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