EE4305 Fuzzy/Neural Systems for Intelligent Robotics
Project for part II: Fuzzy Systems

Instructions:

1. *The due date is 23/04/2023. Please submit the report to the submission folder in CANVAS.*
2. *Submit your technical report as a PDF file. On top of the first page, provide your name and matriculation number.*
3. *The technical report should be the results of an individual work.*
4. *The main body of the technical report (excluding the reference and appendix) should not be longer than 20 pages, and no late submission will be accepted.*

It is well known that fuzzy logic technology provides an efficient way for computer to compute with "words". These devices operate in a way akin to human reasoning, by gathering complex knowledge as they work, then applying that knowledge to their task. The results are products that are more "intelligent" and user-friendly than ever before.

Fuzzy logic has been implemented in shavers (which sense the length, thickness and density of hair and adjust the speed of the motor respectively), washing machines, dryers, cameras, trains, breaks, etc. The list is rapidly growing. Besides, fuzzy logic has also been applied to real time control applications. For example, it has been implemented on a software level in conjunction with artificial neural networks as well as other AI techniques. Researchers are today looking at possibilities of using fuzzy logic for pattern recognition, and other applications which generally require some knowledge based expert system.

In this assignment, students are required to write a technical report regarding any specific application of fuzzy logic technology. This helps to demonstrate the students' understanding in the subject of Fuzzy Logic beyond the normal lectures and tutorials. The technical report must include specific description of the application, the input(s) and output(s) of the fuzzy system, the fuzzy rules and membership functions, as well as the advantages/disadvantages of the fuzzy system in such an application. A literature study might be necessary if you are interested in some existing applications. Meanwhile, you are also encouraged to design a novel fuzzy system to solve some new problems in real life from scratch.

This is an open-ended project. The greater efforts, the more marks.