How to fill up a water reservoir using fuzzy modelling methods

Diploma Thesis

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Main tasks of the thesis

- ▶ Devise a controller which controls height of water level
- ▶ 5 fuzzy modelling approaches and their comparison
- ▶ Application of theoretical knowledge of fuzzy sets, logic and modelling
- ▶ Individual work on real-life problem using LFLC and LFLCSim software

Water resevoir

Inflow

Water height

Unforced outflow
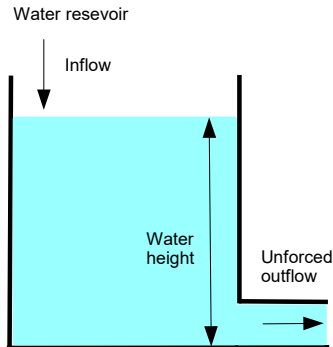
Control system

▶ The goal is to maintain the quantity of interest on desired level under various circumstances

▶ Controller is a device that automatically implements such control
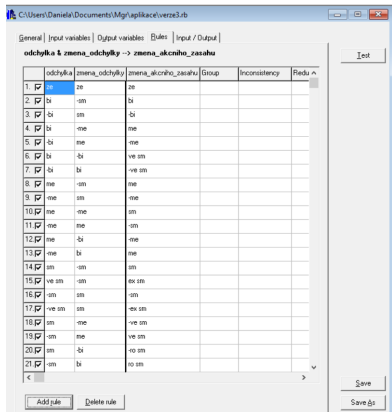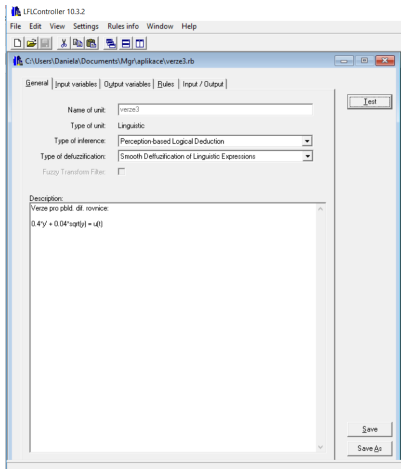
▶ Usually the system is a closed feedback loop control
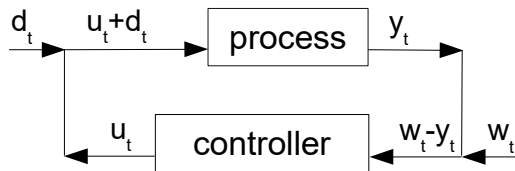
Fuzzy control

▶ Based on the knowledge of the control mechanism not on the mathematical model of the process

▶ Fuzzy controller "replaces the person in control"

▶ Mathematical model of natural human thinking
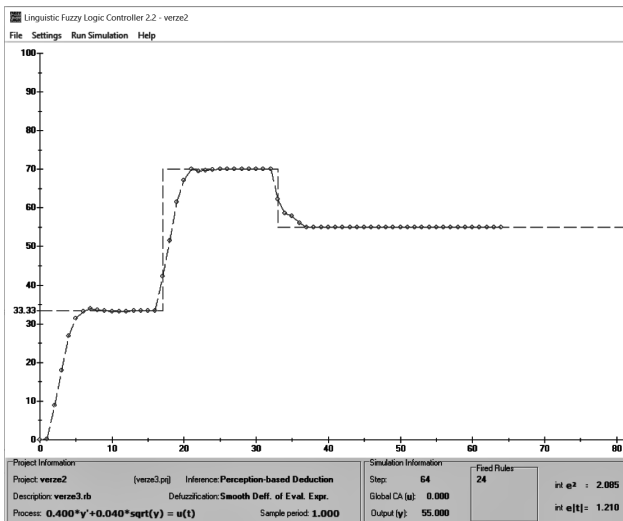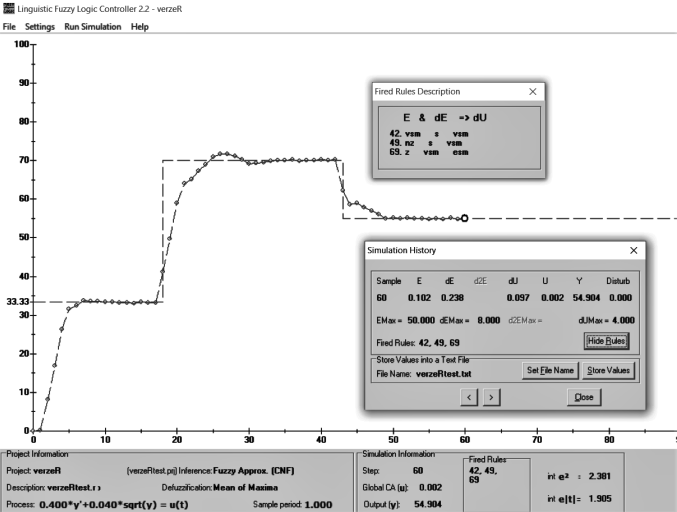
▶ LFLC software
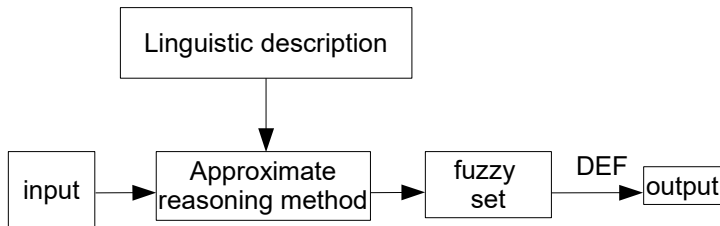
Fuzzy control

Simulation

- ▶ Simulation of the control was made by LFLCSim software
- ▶ LFLCSim is connected to LFLC where the variables and rules are implemented
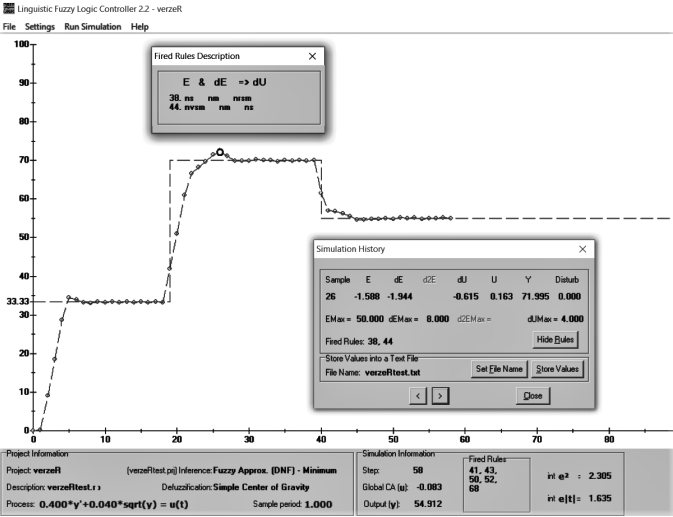- ▶ Output of simulation is an animation of development of the process

Results

Results

Results

Thank you for your attention.