

Circulating multi-car elevator is a system holding multiple cars in two shafts, where cars move upwards in one shaft and downwards in the other shaft. This system is similar to the paternoster, but cars have to stop on floors and open doors to load and unload passengers. Besides many technical challenges, this system brings algorithmic problems regarding efficient control of all cars. This thesis studies an off-line optimization problem, where the most efficient elevator system is searched for a fixed set of passengers. For this purpose, we created a computer program, implementing a genetic algorithm for searching for the most efficient elevator control and a discrete event simulation for evaluation of the efficiency of the control. The program provides a graphical user interface for input of parameters, generating passengers and displaying the results.