8 SUMMARY

Starting from the 20th century, drastic changes have taken place in the field of technology. Innovations have replaced old monotonous solutions, with the invention of virtual PL system many problems have been solved. Out of many improvements, simulation is one of the most advanced solution in recent times, helping engineers to search for more reliable and efficient methods that can reduce time, cost at the same time. However, still it can't be considered as the ultimate solution since the level of challenges are increasing and constantly updated solutions are required to keep up with the competition.

In general, analysis of simulation is considered as significant, testing the solutions and comparing with the others has been proved to be effective. Thesis consisted of an introduction explaining the market situation, its advancements and existing drawbacks , then continuing with the market study using literature review to decide upon researching on a problem related to simulating PL, creating a PL in VC and then evaluating the KPIs of the system but the emphasis was more on time evaluation of different workstation operations (lead time, cycle time, WIP). In the analysis part, each workstation was examined separately to find out limitations. In order to get the most accurate values, formulas and equations were generated and used to find the results, later on graphical approach was performed to represent the solutions on graphs, apart from that time and cost analysis was made to provide an overview about the investment costs that the owner and other shareholders have to bear and the time required for the whole manufacturing process.

According to the KPI results, it can be assumed that the PL is almost ready to be implemented in the industry. Time analysis was estimated to be really high percentage (above 90%), results proving simulation to be reliable. In relation to storage system, warehouse inventory has this problem of a capacity of only 48 boxes to be stored and then the storage system is unable to store anymore boxes, this was one of the problems that needs to taken into account for future research. Considering the fact that the simulation industry is growing rapidly, it might provide interfaces that would create PL by its own using smart systems but this concept can be contemplated in future.