

OPTIMISATION AND PROPOSALS AUTOMATION OF A SELECTED ASSEMBLY PROCESS

Customer:
ZF ACTIVE SAFETY SLOVAKIA S.R.O.

Industry: Automotive

Focus: Assembly of control systems and electric motors for power steering

Location: Production plant Nové Mesto nad Váhom, Slovakia

ZF is a technological corporation active worldwide which supplies mobility for cars, utility vehicles and industrial technology.

“Cooperating with Asseco CEIT, together with our joint work on the manual assembly project, was of great benefit to our team. I appreciate the fact that we were able to involve the assembly line staff in the project, and their suggestions were incorporated into the suggested solutions.”

Peter Lacko, IMS & CIS Leader,
ZF Active Safety Slovakia

THREE LEVELS OF WORKPLACE
OPTIMISATION FOR DIFFERENT
LEVELS OF AUTOMATION AND
FINANCIAL COSTS



Project background

The objectives of the project were to suggest measures to eliminate losses and waste on the electric motor winding workplace, to identify the potential for increasing productivity and to work on proposals to reduce the ergonomic burden on staff. This was followed by the development of three levels of optimisation for different levels of automation and financial costs.

Solution

The solution was divided into four phases: from a rough analysis of losses to the preparation of proposals for automating the workplace.

1st phase: Collecting all the necessary data, which was then processed using the AviX software. The rough analysis of losses, based on video sequences of individual work processes, helped define potentials for increasing work productivity by up to 49%.

2nd phase: Processing MTM analyses using the MTM-1 method, which is particularly suitable for optimising short work cycles. Based on this analysis, the process losses resulting from a non-uniform execution of operations were defined in cooperation with the training centre, followed by objective work and time standards.

3rd phase: Information obtained from the MTM analysis was used in a workshop, where a joint Asseco CEIT and ZF work time generated over 40 measures to increase work productivity and to partially reduce the ergonomic burden.

4th phase: Asseco CEIT prepared a rough concept of the possibilities of automating selected processes, including a visualisation. Potential solutions were presented at three levels, from a low-cost solution using slanted shelving and roller conveyors, to a design using collaborative robots and automated conveyor belt systems.

Project output

One of the many project outputs was the specified need for an in-depth ergonomic analysis of selected processes, since this is a physically specific process which replaces full automation using current technologies.

Project benefits:

setting out

optimal

work methods and conditions

creating objective time standards using the

MTM-1

method

defining an action plan for a realistic increased work productivity of up to

40 %

creating concepts for the

low-cost

mechanisation and automation of selected processes with a calculated payback ranging from 2 to 27 months

