White Paper

mapp technology

Benchmark

TABLE OF CONTENTS

1 EXECUTIVE SUMMARY

In a comparative study, LIAM – the Laboratory of Industrial Automation for Packaging Machines – measured the effects on development time of using mapp technology when creating application software. When compared to programming with IEC 61131 languages and PLCopen blocks, mapp increased efficiency by two-thirds (25 vs. 79.5 hours). The programming of a flying saw was chosen for the comparison. In order to have a comparable basis, all typical phases of application software development were measured – from design and implementation to testing.

2 BENCHMARK

The benchmark comparison was performed by the application developers at the LIAM Institute.

2.1 Task definition

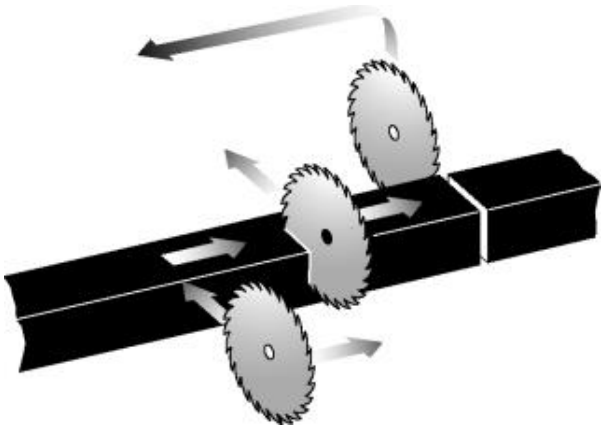

Figure: Diagram of a flying saw and feed

The programming of a flying saw was chosen for the benchmark testing since it includes typical components of an application, such as servo axes, cam profiles, recipe system, diagnostics, etc. The machine consists of four axes: feed, saw and two positioning axes. In order to be able to saw while the feed is moving, electronic gears and cam profiles are necessary. A visualization application was implemented to operate the machine.

2.2 Implementation

The application was programmed by application developers experienced in PLCopen and IEC 61131 languages. Automation Studio from B&R was used for the development environment. All time-consuming activities were logged precisely in order to have an exact basis from which to draw comparisons.

The programmers first set up the machine using mapp technology. They used 15 mapp components from the following areas: motion, recipes, file management and trace functionality. The individual mapp components only had to be configured graphically. Since the mapp link allows for automatic data exchange, the actual programming work was reduced to implementing sequential control. Approximately 20% of the available mapp components (as of November 2014) were used.

The same programmers then repeated the implementation of the machine with IEC 61131 standard functions and PLCopen blocks. Implementation took 79.5 hours.