

## SW for laser welding and engraving robot with AI support

### Development status

#### Phase 4

**The transition from the prototype to the final and fully functional form.** At this stage, the prototype is already fully tested, or the technology is certified and ready for mass deployment.

### IP protection status

know-how, trade secret, copyright law

### Partnering strategy

*Co-development, Collaboration, licensing*



### Institution

### Challenge

Welding and engraving robots often lack functions that subsequently need to be performed manually or require operator intervention. The developed system enables the automation of sub-steps in production, eliminating the need for an operator and thus saving time and money.

### Description

Our technology consists of a software solution, the dominant feature of which is the utilization of neural networks working with digital images. Images are captured using standard cameras mounted on robots. This results in several benefits, including the use of standard cameras and conventional or industrial PCs. The product adds significant value, with the main focus on deploying highly specialized software. Our technology enables: - Automatic focusing of the welding and engraving robot with an accuracy of 0.2 mm. - Measurement of engraving depth with an accuracy of 0.03 mm. - Evaluation of the suitability of the area for engraving. - Filtering plasma in the visual output. - Determining the inclination of the workpiece to be welded. - Real-time evaluation of weld quality during the welding process. The technology is unique in the market and provides welding and laser engraving robot manufacturers with an essential competitive advantage.

### Commercial opportunity

The technology is designed for manufacturers of welding and laser engraving robots. For pilot testing, the software solution was developed in a joint project with MEPAC.



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