



INDUSTRIAL PIRACY PROTECTION FOR MACHINES AND INDUSTRIAL CYBER PHYSICAL SYSTEMS

Fraunhofer supports industrial partner in the active protection of their IP and offers ready-to-use solutions for the combat against product counterfeiting and industrial espionage.

In emerging economies machinery manufacturer make high profits, but the risk of product counterfeit is high in these countries. The illegal reproduction of plants, systems or components is increasingly threatening to the mechanical engineering industry and results in enormous economic damage. Current concepts for piracy protection are often based on obfuscation mechanisms (e. g. code obfuscation) or inflexible physical guarding measures (e. g. hardware dongle). Code obfuscation aims at making the program flow logic appear incomprehensible. It increases the effort for retrofitting, but does not offer an effective protection against illegal copies. Combining code obfuscation and a hardware module (dongle) protects only the software of the control unit, but does not prevent hardware copies.

Protection for Smart Manufacturing and Industrial IT

The solution offered by Fraunhofer rests on fingerprinting an industrial machine and its components by state-of-the-art cryptography and trust mechanisms in hard- and software. Without access to the machine's component identifier, even company insiders, who know the system very well cannot

counterfeit individual modules or the central control unit. The protection level can be adjusted in such a manner that no service disruptions (24/7) occur due to unintentional or short-term changes on individual components. In case of service maintenance or malfunction the component can be replaced by new one, properly licensed components at any time, without having to reinitialize the entire system.

Recognizing Fakes and Piracy Attempts

An machine fingerprint is build by linking individual component identities. For proper machine operation a minimum amount of original components must be licensed beforehand, and later pass authorization. Forged system components will be detected immediately. Accordingly, industrial machines will only function faultlessly if the components are authentic and have been licensed by the manufacturer.

Our offers and services

- Integration of IT security mechanisms and best practices
- Development of protocols and IT security functions
- Consultation services about technological anti-piracy protection and solutions
- Custom-tailored Development of individual security and anti-piracy concepts and prototypes
- Piloting and feasibility studies

About Fraunhofer:

Fraunhofer is the leading organization for applied research in Germany and Europe. Over 25,000 highly qualified employees are covering all areas of research and make customized services possible. **Fraunhofer Singapore** is the first Fraunhofer subsidiary in Asia, developing solutions and services that help companies and industries stay ahead of the competition.

Fraunhofer Singapore

50 Nanyang Avenue, NS1-1 Level 5
Singapore 639798

Contact:

Michael Kasper

Phone: (+65) 9183 0043

michael.kasper@fraunhofer.sg

www.fraunhofer.sg