

PUBLIC SELECTION BASED ON QUALIFICATIONS AND INTERVIEW FOR THE AWARDING OF NO. 1 EARLY STAGE GRANT LASTING 12 MONTHS FOR CONDUCTING RESEARCH PURSUANT TO ART. 22 OF LAW NO. 240/2010 AT THE DEPARTMENT OF MANAGEMENT, INFORMATION AND PRODUCTION ENGINEERING (SC 09/B1 - MANUFACTURING TECHNOLOGY AND SYSTEMS - SSD ING-IND/16 - MANUFACTURING TECHNOLOGY AND SYSTEMS (CUP: E19I18000000009) TYPE B

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RESEARCH PROJECT

"Methods for monitoring manufacturing machines based on non-conventional technologies"

Department of management, information and production engineering

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A.D. ING-IND/16 - Manufacturing technology and systems

A.R.F.: 09/B1 - Manufacturing technology and systems

The research objective is the analysis of methods for monitoring manufacturing machines based on non-conventional technologies. The final purpose is to monitor and predict the operating conditions of the machine (or of a single component) by providing quantitative information on its "state of health".

The activity will be carried out, as an example, on a machine for micro-EDM (Electro Discharge Machining) available at the Laboratories of the University of Bergamo. The machine will be equipped with suitable sensors for its monitoring during normal machining operations. During the experimental tests, the most significant process parameters will be acquired (e.g. current, voltage and duration of the discharge). These parameters will be correlated with the process and product performances in order to identify the health status of the machine and to correlate the values with the quality of the operations. In this regard, the project fits rightfully into the Industry 4.0 paradigm, with the ambition to promote the diffusion, within the business processes, of the IoT and digital technologies, in one of the areas where the return on investment is more visible and easily reputable. Many of the maintenance activities are based on the availability of information: the greater the volume of information made available in relation to plants, machinery and individual components within the production chain, the greater the speed and precision with which the maintenance activities can be performed.