

PUBLIC SELECTION BASED ON QUALIFICATIONS AND INTERVIEW FOR THE AWARDING OF NO. 1 GRANT LASTING 12 MONTHS FOR CONDUCTING RESEARCH IN ACCORDANCE WITH ART. 22 OF LAW OF 30.12.2010 NO. 240 AT THE DEPARTMENT MANAGEMENT, INFORMATION AND PRODUCTION ENGINEERING OF THE UNIVERSITY OF BERGAMO (ACADEMIC RECRUITMENT FIELD 09/G1 – SYSTEMS AND CONTROL ENGINEERING) ACADEMIC DISCIPLINE ING-INF/04 – SYSTEMS AND CONTROL ENGINEERING FROM THE PROJECT: “RELIABLE ELECTROMECHANICAL ACTUATOR FOR PRIMARY SURFACE WITH HEALTH MONITORING (REPRISE)” CUP: F52F16000070006

announced with decree of the Rector Rep. no. 721/2017 of 11.12.2017 and posted on the official registry of the University on 11.12.2017

RESEARCH PROJECT

"Development of a model free method for the health monitoring of electromechanical systems"

GENERAL OBJECTIVES OF THE PROJECT

This research grant is part of the European project REPRISE, whose main objective (for the University of Bergamo) is to develop a health monitoring system of an electromechanical actuator capable of detecting degradations and predicting their progression until there are failures. Currently the REPRISE project is completing its first experimental phase. The aim of this first activity is to stress the actuator by means of loads higher than the nominal ones and by putting the actuator under poor lubrication conditions. The methods currently under test do not detect major fatigue of the actuator, consistently with the periodic visual inspections of the components. While waiting for experimental evidence of functional degradation of the system, the aim is to test additional new health monitoring methods specifically designed for the application under investigation.

The candidate must be able to analyze the data already measured and those that will come later and explore the fault detection literature in search of suitable or adaptable methods. It must then be able to implement algorithms in rapid prototyping and test environments (Matlab / Simulink or Python) and critically analyze the results.

RESEARCH PROJECT

The research project outline is the following:

- 1) Alignment with the current state of the research project, particularly the experimental part
- 2) Analysis of the results obtained up to the beginning of the assignment
- 3) Analysis of current literature on diagnostics and monitoring of machines, plants and components
- 4) Selection of a method, SW implementation of the algorithm and validation test.