

Advances Integration of RLC Measurement Methods in the Takaya APT 9411 and 1400F

1. Scope

The scope of this project is to support the collaboration between industry representatives and University research teams in the direction of functional *industrial research and experimental developments*. We are looking to develop methods, technologies and algorithms, in the Industry 4.0 framework, which allow a transparent integration of external measurement equipment in the APT flow process. This proposal will bring additional benefits to the performances of the APT systems from the perspective of both accuracy and precision parameters.

2. Specific objectives

- Increasing the level of collaboration between industry actors and highly experienced University research teams;
- Increasing the amount of knowledge transfer from the research team to the industry stakeholder and consolidating the TRL of the proposed validated technology;
- Increasing the capabilities of University research teams to design, develop and deploy highly competitive solutions which can be successfully integrated in the industrial fields;
- Enriching the portfolio of a Romanian Test and Measurement company with a product that will generate international appreciation and visibility, while contributing to consolidating our position with respect to R&D activities performed on a worldwide production and prototyping equipment.

3. Participation conditions

The Project Coordinator/Director should be part of the University staff having consistent and relevant research results in the areas of measurements and instrumentation, electronics and electronic systems, automation, equipment integrations, sensors, signal processing, interfacing and physics. Prior industry experience in the mentioned domains is considered a plus and a Ph.D. degree, with a thematic in correspondence with the envisioned developments, is required. Knowledge in software applications like LabVIEW, C/C++, Visual C is necessary and appreciated, especially if presented results have contributed to other industrial research and experimental developments. The research team, as a whole, should have experience in electronics and measurement technologies and should present relevant publications (Journals & Conference indexed) with respect to the presented requirements. There is no restriction on the number of members in the team, but the allocated activities and the role of each team member must be discussed with the company representatives. Part of the project work will take place at the company headquarter, because access to the Takaya equipment is necessary. This will be done according to a preestablished schedule but not interfering with the didactic activities of the team members. The competition will be coordinated by the Alfa Test technical management team, represented by its leader. All project proposals will be analysed, and a report will be issued to the Project Coordinator.

4. Ethics

The project theme will be the development of methods, technologies and algorithms, which allow a transparent integration of external measurement equipment. Only one proposal can be made by one Project Coordinator/Director. No projects that are already financed or are expected to be financed can be entered in this competition. The Project Coordinator/Director has the obligation to confirm the fact that the proposal conforms with Legea nr. 206/2004 regarding good conduct in scientific research, development technology and innovation, with subsequent modifications and completions, as well as other ethical legislative regulations specific to the field of research of the project. Scientific research directions, ideas and experimentation within the project framework are free of constraints. Academic freedom will be respected. All project research activities shall be carried out in compliance with fundamental ethical principles. No discriminations between team members, women and men, are allowed. Experimental results, in all shapes and content, can be used by any of

the team members, in agreement with the company, in the following conditions: personal study, publication in didactic materials (books, manuals, chapters, diploma/dissertations, brochures, lectures and laboratories in the University), publication in the scope of grants/projects, national and/or international, scientific papers published in conference proceedings and/or journals, on-line resources or any other publication form, printed or electronic. Publication of experimental results, in any of the above mentioned forms, will include in the Acknowledgement section the following phrase: "Experimental results have been obtained in collaboration with Alfa Test SRL, www.alfatest.ro."

5. Duration

The project duration is 9 months and the estimated starting is 16.02.2020 or a date established after discussions with the Project Coordinator/Director.

6. Budget and expenses

The project budget is offered by Alfa Test and is equivalent to 58500 RON. It includes the VAT charges and will be transferred to the University in equal shares, following monthly Reception Process documents in which progress results will be reported in accordance with the project requirements.

The eligible expenses can be direct expenses (personnel expenses, material expenses, logistics expenses), and indirect expenses (a maximum of 10% of the total value of the project). All other expenses regarding publishing of the results (conference fees, travel expenses, etc.) will be paid from the own funds of the project team or their University.

7. The project proposal

The proposal will have the following sections:

- Section A (maximum 2 pages), in which the scientific achievements of the project director are presented, which illustrate the ability to conduct a research project and highlight how these achievements are relevant to the project proposal;
- Section B (maximum 5 pages), will contain the following subsections:
 - B1. Scientific relevance. The choice of the theme of the project will be motivated by framing the problem addressed in the current scientific context. The difficulty elements of the problem and analysis of the current state of the art related to the theme of the project should be discussed;
 - B2. Objectives / Activities of the project. These will be presented including elements of novelty and originality that the implementation of the project would bring related to the current state of the art;
 - B3. Results and impact. The expected results will be highlighted focusing on the realization of schematics, new or improved measurement methods, publication of at least one scientific article on the subject of the project and aspects related to the estimated impact of the project in the context of the scientific expertise of the team members;
 - B4. Methodology. The following will be highlighted: the research methods and tools, by reference to the newest approaches in the subject area, as well as how they will be integrated; a work plan in which the proposed activities are detailed over time, describing the organization and planning of the project in relation to the proposed objectives. The role of each member of the research team in the project will be detailed. The research methodology will be presented, specifying, as possible, intermediary targets. Risks of the research and the ways in which these will be removed, will be mentioned. The deliverables will be described;
 - B5. Resources and budget. The existing necessary resources in the university will be presented. The source of the financing for the expenses not covered in the budget of the project will be mentioned;
 - B6. Bibliography.

8. Project Proposal Submission and Evaluation

The competition can be entered by sending the project proposal documentation, in pdf format, by the Project Coordinator/Director, to the following e-mail address: slageana.miu@alfatest.ro. The proposal must be sent before 07.02.2020. Evaluation of the project proposals will be done by the Alfa Test technical team, and all the applicants will receive an e-mail regarding the financing/not financing of their proposal, no later than 11.02.2020.