Editorial

With great pleasure, I present our scientific and academic community with the 15th issue of the TECCIENCIA magazine. This issue preserves its characteristic scientific quality with papers that have been selected and translated into English, in order to assure their traceability and secure a space in the international dissemination of scientific knowledge.

The Colombian School for Industrial Studies (ECCI, its Spanish acronym), has developed a Research, Development, and Innovation (R+D+I) model and applies best practices in the conduct of its research. Due to the policies of quality and research at ECCI, the magazine TECCIENCIA is envisioned as a high-impact publication that receives papers from well-known researchers in the field of applied sciences and engineering. By publishing these articles, the result of the R+D+I projects, we strengthen the primary line of work at ECCI.

It is within this context that the papers in this issue are presented. First of all, we must highlight the work of research groups GIBULA (in Merida, Venezuela), together with research group GINIC-HUS ECCI (in Bogota, Colombia). They wrote a paper titled, "Automatic Quantification of the Degree of Flexion on Upper Extremity through Analysis of Monocular Video," in which they present a method that permits the acquisition of information from the motion of a human upper extremity, based on automatic analysis of the video.

The University Director's Office at ECCI and the Innovation Research and Applied Technological Development Group (INDETECA) have contributed to efforts to apply scientific knowledge in higher education with their review paper called: 'Application of ultrasound in medicine. Part II: the ultrasonic transducer and its associated electronics." This is the second part of the paper published in issue No. 14, and it analyzes, from the vast literature in the field, the different applications of ultrasound in medicine, with emphasis on the transducer and its associated electronics.

Also, the research group from Distrital University G-CEM has developed its paper called "COMPARISON OF THERMAL SOLAR COLLECTOR TECHNOLOGIES AND THEIR APPLICATIONS" It analyzes and compares the functioning of the different kinds of solar thermal controllers and their main characteristics.

Regarding the field of applied electronics, ECCI research group INDETECA wrote a paper on power electronics called "Modeling, analysis, and control of a rectifier with power factor correction in half-bridge configuration" It shows a single-phase half-bridge rectifier, with high power factor (RPFU-HBB). This research work achieved a unitary power factor and a regulated output voltage, this being its main contribution to the field of research.

Solutions to problems in the industrial sector show the relevance of science and engineering in a local context. There, the research paper from the National University of Colombia, "Efficient Picking Order in a Coffee Trading Company using Tabu Search," plays a key role. It shows the development of a tabu search metaheuristic (model or algorithm) that allows one to solve the routing problem in order picking systems, such as the Travelling Salesman Problem (TSP), by obtaining minimal distances to pick up products from storage locations.

In the field of genetic engineering applied to the creation of new vegetable species, the Environmental Management and Sustainable Development research group GADES from Jorge Tadeo Lozano University, together with ECCI, presented the paper entitled "Research Panorama on the Second Green Revolution in the World and Colombia" It shows how the so-called second green revolution was established as a strategy to guarantee the food security of a growing population that demands resources. The second green revolution has as its purpose the optimization of crop productivity by introducing specific characteristics, such as insect resistance and herbicide tolerance, which allow Genetically Modified Organisms (GMOs) to be more tolerant to threats from the natural environment. The current debate around this revolution is intensifying and involves different interests, due to its cross-curricular nature and impact on social, scientific, economic, politic and ecological issues.

Research projects on networks and telecommunications are also found. The Development and Data Systems research group, from Distrital University, submitted the paper called "Evaluation of the Performance of Techniques to Transmit IPv6 Data through IPv4 Networks," where the simulation of an IPv4 network connected to two IPv6 'islands' is shown. These protocols are not compatible, therefore transition mechanisms were

implemented, playing a very important role in the total display of IPv6, such as: Tunneling and Network Address Translation. These transition mechanisms are considered research contribution.

Another very interesting contribution is the research developed by the Design, Modeling and Simulation (DIMSI) research group from Distrital Francisco Jose de Caldas University. This paper, called "GENERATION OF A MOBILITY DEVICE FOR DISABLED PEOPLE DRIVE, USING THE METHOD OF QUALITY FUNCTION," shows a design for a mobility device for people with mobility disabilities between 8 and 15 years old, with T12 pathologies and without concomitant pathologies in the upper extremities.

From San Buenaventura University, researchers from the Sound Engineering program presented their work, "System and Software Development to Measure Cylindrical Pipes Based on Acoustic Reflectometry" It describes the uses of acoustic reflectometry, its theories, and its implementation as a technique to measure cylinder pipes. It describes, as well, the way the reflectometer is build and implemented, and the materials needed. This system allows one to capture reflections coming from the low measuring tube.

Finally, in the field of Web Engineering and Knowledge Management, researchers from Distrital University submitted the paper entitled, "Topological monitoring, management and display of network manageable devices through wireless clients." It shows the methodology, development and advantages of a prototype that allows ubiquitous, real-time, visual access to information about behavior and network device status from a mobile device, requiring only a Web browser that can run HTML5 and JavaScript protocol.

For TECCIENCIA's Editorial and Scientific Committee, together with the University Research Office and the University Director's Office, it is an honor to present these research papers. We hope they are well-received as a contribution to the scientific community in their research

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