JME
Journal of Mechatronics Engineering

Mechatronics

Mechatronics is an interdisciplinary knowledge area essentially formed by the areas of Mechanics, Electronics and Computing. Research in this area promotes the growth of scientific, technological and engineering knowledge.

The main productive segment benefited by mechatronics is industry, since it allows better quality in products, which can be generated at lower production costs. However, the medical-hospital sector has also been greatly benefited by Biomedical Engineering and Computer Science in Health, where many mechatronic devices and computer systems have helped in the diagnosis and treatment of diseases, thus increasing human life expectancy.

Within Mechanics, we can cite countless subareas that work together with Mechatronics. The machining and making of molds for parts are one of the most expressive of these areas. This requires the use of technologies such as computer-aided design (CAD); computer-aided manufacturing (CAM) and computer-aided engineering (CAE); in which a part is drawn in specific programs and machined automatically after undergoing computer-simulated stress tests. 3D printing also contributes to the prototyping of parts. All this allows the construction of machines from materials optimized for each application. Materials Engineering works in the design of new materials for new applications or innovative ways of using existing materials. Production control techniques are also applied.

Electronics has been present in industry since the last century, mainly through Automation processes. Advanced control and instrumentation techniques in the field, as well as industrial networks of controllers and sensors have been developed. The Power Electronics allows the proper activation of high power loads such as motors. All this occurs on the factory floor, in adverse conditions of temperature, noise, dust, chemicals, vibration and other industrial issues.

Computing has also been present, executing systems of supervision of industrial processes, both in the form of hardware and software. Computational intelligence techniques have been applied to a number of sectors, allowing patterns recognition in the process thus maximizing their performance. Computer vision has also been present through Robotics, and the Internet of Things (IoT) has already hit industry.

Robotics is the boom of Mechatronics, in which you have in a single piece of equipment the three links of mechatronics in full harmony.

There are many Engineering undergraduate and graduate courses available in the world, besides many teaching and education actions in the area. Mechatronics represents an important employment and income opportunity, as well as a basic tool for the development of industry, which also allows young entrepreneurs to compete in the market and to contribute more directly to science and technological development. There is a lot to research, to develop, to innovate and to engage in this area.

Thus, the Journal of Mechatronics Engineering begins its activities as a new vehicle for scientific and technological publishing. In this first issue, we publish two papers, titled "Versatile IoT System for Cloud-Based Sensor Monitoring" and "The Use of a Statistical Filter and Metaheuristics to Model and Control the DC Motor of the Mobile Robot Used on NXP Cup". The first article addresses the topic of data acquisition and cloud computing, whereas the second addresses control applied to motor DC in mobile robots, in Competitive Robotics. Therefore, we start the successful participation of the JME in the scientific and technological world.

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