



The World of Automation

2009 NOVEMBER ISSUE I

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A Message From the President of ISA-KFUPM

A good understanding of what's happening out there in the industry as well as a good experience in building automation related projects are special elements that most recruiters look for in a fresh graduate. Here, we are trying to offer our fellow members exposure to new automation technologies, engagement in fun project and more! Since 1945, the International Society of Automation (ISA) is home for a global network of automation professionals, professors and students. Today, ISA is helping over 30,000



members worldwide and other professionals solve difficult technical problems. The Saudi chapter holds monthly dinner meeting sponsored by prominent automation companies. At KFUPM, we have an enthusiastic team of more than 60 students from diverse majors interested in automation topics and technologies. Thanks to all who made this news-

letter possible. They proved the great caliber we seek in all of our activities. I wish that you enjoy reading this newsletter and would continue to share with us your innovative ideas that contribute to the excellence we always strive for.

Sincerely yours,

Sami Al-AbdRabbuh
President, ISA KFUPM
student chapter

For You & By You

We are proud to introduce you the ISA-KFUPM newsletter. The main purpose of publishing this newsletter is to deliver the concept of Automation to all KFUPM students. It will include different topics related to control sys-

tems, measurements and several other subjects. One of our Goals in this newsletter is to help students read, search and share knowledge. So if you are interested in a certain topic, feel free to share your knowledge with us, and be a part of

our family. You will find our contacts at the end of the newsletter.

Mohammad Shaqura
ISA-KFUPM newsletter,
editor

Much More Than Simulation

By **Mohammad Shaqura**

Process Simulation is known as a model-based representation of processes using software. But when system simulation and virtual reality (VR) are combined, this definition should definitely be modified.

The new EYEsim virtual system developed by Inven-sys in which the full detailed plant is created using Computer Aided Design (CAD) and digital photography. The new system enables the user to interact with the simulated system using VR equipments including 3D glasses and a joystick to move in the virtual world. The user can

walk in the plant and perform different tasks such as checking control units, opening or closing valves and reading gauges. This technology improves the role of engineers and operators in the plant since they can directly control the process and monitor its parameters. The EYEsim also

simulates emergencies and allows the user to shutdown the plant. Besides its benefit in operation, it can be utilized for training new engineers, operators and technicians to avoid putting them and the plant at risk. This is just the beginning of interactive simulations and much more is coming on the way!



What is



Distributed Control System (DCS)

- A DCS is a control system used in industrial processes or dynamic systems where the controller elements are distributed throughout the system rather than being centered in one location.
- The DCS components are connected via wired or wireless networks for communication and monitoring.
- A DCS consists of a remote control panel, communications medium, central control panel and an interface software for control and database.
- DCSs can be used in several processes, for example, oil refineries, electrical generation plants, food manufacturing and traffic signals systems.

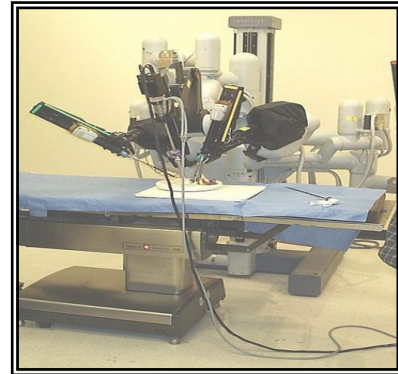
The Robots

By Awad Humaid

When we hear the word 'Robot' for the first time, our minds go directly to the kind of devices that look like a human being with two legs and two arms and perform some tasks in the same manner a human does. However, the word 'Robot' has a wider meaning, it means any device or machine that can do specific tasks automatically without human-intervention, so it has enough artificial intelligence to sense the environment and respond

accordingly. The robots are used for several reasons; some of which are economical, for example, they can perform jobs more cheaply or with greater accuracy and reliability than humans. Another very important reason is that some tasks are dangerous for humans such as exploring inside a volcano or any other high temperature and pressure areas. Some other tasks are physically inaccessible, such as exploring another planet and so on.

There are many applications for robots. For example manufacturing, assembly and packing, transport, earth and space exploration and surgeries.



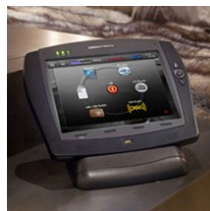
A laparoscopic robotic surgery machine

HOME AUTOMATION: JUST RELAX AND SAVE YOUR ENERGY BILL

By: Mohammad Abdul Gader

Nowadays we can see our homes full of electrical appliances, air conditioners, TVs, computers and different lighting systems. Although you can easily switch all of them on and enjoy your modern electronic home, the electricity meter will never be merciful. Energy is always a critical concern to many developers as well as consumers. Now it's time to let the automation & control systems change your life dramatically. If you left your home lights turned

on or any electrical component, you can just put them all off by a phone call or even using the internet. It's amazing! Many companies are specialized in



developing control & automation systems for homes (e.g. Home Automation, Inc.) taking into account: energy management and income

levels. Moreover, these systems have proven their efficiency in saving energy consumption at homes by controlling: Heat & Cooling systems, Water heaters, Lighting system and other appliances. Amazingly, now you can control your home over the internet using your iPhone with much facilitated software programs. Finally, you can just go anywhere without worrying about your energy bill.

Automation Cartoons



www.automation.com

For students wanting to publish on ISA-KFUPM newsletter, they should follow these regulations:

- Any contributions should be written in your own words, we don't tolerate plagiarism !
- All contributions should be sent through the newsletter's email, and should contain the full name of the writer, his ID#, major and mobile number.
- The writer should provide the sources from which the information was gathered.

Sami Al-AbdRabbuh
ISA-KFUPM, President.

Mohammed Shaqura
The World of Automation, Editor.

Amro Messaoudi
The World of Automation, Reviewer.

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In cooperation with:

