****Cairo University

Faculty of Engineering

Electronics and Electrical Communications Engineering Dept.

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| Wireless Virtual Instruments |
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Wireless Virtual Instruments

Dr: Hani ElSayed

**Abstract:**

The project objective is to design and implement the hardware and software for a wireless virtual instrument. Basic virtual devices such as a digital storage oscilloscope will first be implemented taking into consideration the power and bandwidth requirements. Then, as time permits, other instruments for specific applications will be developed.

A suitable microcontroller with wireless interface will be used to implement the wireless probes for data collection. Software for data analysis and GUI interface will be developed on the PC. Several techniques for data compression and power saving will be tested for different applications.

With virtual instrumentation systems, productivity can he increased as common development tools and test programs are shared amongst departments. Because PC-based instrumentation systems can leverage off rapid technological Changes in the computer industry to produce virtual instruments, new uses and applications for such instrumentation systems are rapidly changing. As the performance of operating systems, processors, and buses improve without increasing the overall system price, these virtual instruments are becoming more advantageous for systems analysis and design applications. One such instrumentation package is LabVIEW (National Instruments Carp., Austin, Texas). This software package is one of the first graphical programming products, and is currently used in academia and industries for data acquisition, remote control, simulation, and analysis. Since Lab VIEW is based on graphical programming, users can build instrumentation called ―virtual instruments‖ using software objects. With proper hardware these virtual instruments can he used for remote data acquisition, analysis, design and distributed control.

**CONCLUSION:**

Wireless Oscilloscope with BW 16KHZ and with Sampling Frequency 200Ksample/sec

WI-FI Module sends sampled data to Laptop and GUI program display the measured signal and do some processing on it

Modes of Wireless Oscilloscope

 Display Mode

 Real Time Mode

Function Supported by Wireless Oscilloscope

 Triggering

 Volt/div measure voltage

 Time/div measure period and Frequency

Future Works

 Plotxy Function in Oscilloscope

 Implementation Function of Network analyzer and Spectrum analyzer, logical analyzer in software.

 Send the measured signal and display it in Mobile phones by QT Programming