APPENDIX 1

CLARIFICATIONS FOR EXAMINERS REPORT

1. In chapter 2 (page 45), Table 2.2, the information containing different
parameters of importance and classifications of methodology used are given.

2. The results that advances the research in this area are explained in chapter 3
at page 77.

3. The usage of the different applications of an enhanced wireless DAQ
system are discussed in chapter 4 at page 98.

4. The usage of real-time embedded Linux based DAQ system results are
explained in chapter 5 at page 129.

5. In chapter 7, Figure 7.1 represents the physical appearance of LPC2129,
LPC1114 and S3C2440A ARM processors. The Y components of Figure 7.2
indicate the number of features of the processors with respect to their
operating frequency in MHz, and the Y components of Figure 7.3 shows the
capacity of the flash memory in Kb, number of UARTs, Timers, ADCs and
the number of general purpose input and output (GPIO) pins.

6. Uses of interfaces for simulations: Large number of software components
are available in LabVIEW as provided by National Instruments which aids to
develop complex applications in minimum time period. Applications running
on ARM Cortex and ARM7 can be connected to a Graphical User Interface
(GUI) running on PC, so users can control the embedded system and observe
the output at ease. The LabVIEW has inbuilt device drivers for ARM Cortex and ARM7 for interfacing with GUI.

Visual Studio express is a programming Interface Development Environment (IDE) that lets user code applications in visual basic. There is a provision to compile the applications of ARM9 in visual studio. ARM compiler tool chain V4.1 patch5 is used for interfacing ARM9 and visual studio.

Web server in embedded system is achieved by implementing Ethernet connection to the internet. JTAG debug interface and GNC Compiler (ARM-Linux-GCC-4.3.3) tool chain are used to connect the ARM with Web server. Specific IP address is used to view the acquired data as HTML page in Web server.

ARM-WinCE Cross Compiler (Version: CeGCC Cross Compiler of GCC 4.40) is used for setting up development environment. This cross compiler tool chain is available in WinCE 6.0 which is ported in ARM9.

**Ease of use of the tools created:** A study about various implementations with ARM processor cores, Wireless protocols, Web based DAQs, Real-time DAQs, and GUI based DAQs are carried out. The compiler tools and RTOS used are open source software and the simulation tools used are user friendly. Various Real-time applications can be implemented easily with ARM cores. Example: Web based remote laboratory (Virtual Laboratory) for monitoring and diagnosis of circuit branch labs. Web based patient monitoring system is also possible with this implementation modules.

7. In chapter 7 (page 166), Table 7.5 shows the trade-off of performance comparisons based on test samples on different cases.
<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Examiners Report</th>
<th>Clarifications for Examiners Report</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>In figure 3.13, pg no. 65, what is the baud rate used in the RS232 interfaced with PC?</td>
<td>In figure 3.13, baud rate used in the RS232 interfaced with PC is 9600bps-115200bps. It is configurable based on the processor’s transmission rate.</td>
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<tr>
<td>2</td>
<td>What are amplifier design parameters?</td>
<td>Gain, Slew rate, Output impedance, Distortion, Bandwidth, Signal to Noise Ratio are the amplifier design parameters.</td>
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<tr>
<td>3</td>
<td>In figure 3.20, explain how the percentage of usage obtained? Why are the input parameters of the test samples not specified?</td>
<td>In figure 3.20, the percentage of usage is obtained from user manuals and product vendors catalogs. The input parameters of the test samples corresponding to the applications are as follows: Industrial Applications – Temperature monitoring systems, Pressure monitoring systems, Gas leakage monitoring systems. Networking Applications – Internet based monitoring and control, Ethernet based DAQ, Wireless data communication. Office Applications – Attendance management system, Automatic power line monitoring system, security applications. Telecom Applications – Stand-alone data logging, large scale battery monitoring for telecom sites.</td>
</tr>
<tr>
<td>4</td>
<td>In table 3.2, 4.1 &amp; 4.2, where and how did you get the details for comparison?</td>
<td>In table 3.2, 4.1 and 4.2 the details for comparison are collected from data sheets and user manuals. The comparisons with respect to processor cores, wireless techniques, RTOS used and the simulation tools used for implementations are carried out. Hence it is proved that the specific processor is performing better for specified applications.</td>
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<tr>
<td>5</td>
<td>In table 5.1, how did you measure development cost?</td>
<td>In table 5.1 the development cost is measured based on Compilers IDE, Debuggers, Emulators and JTAG tools and also it depends on the vendors.</td>
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