

## USB Hands-On

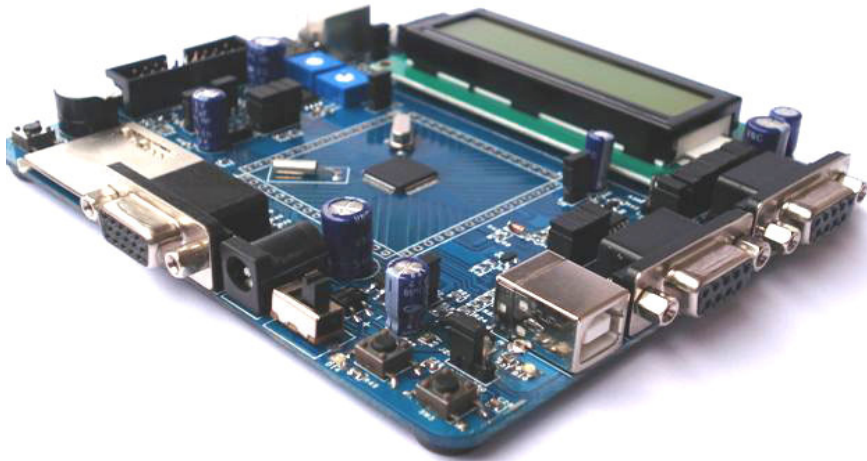


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### BlueBoard- LPC2148



#### **Workshop**

This hands-on training provides complete knowledge required to design your Embedded USB Applications. Two days comprehensive training is designed in such a way that it fulfills the industrial development needs.

#### **Who should Attend?**

Any one with good C programming skills and basic knowledge of micro-controller / microprocessor.

#### **Lab Environment**

The training will be on Blueboard LPC2148 ARM7 board and host development is on Win OS.

#### **Timings & Fees**

Classes from 10:00 AM to 4:30 PM & Fee is Rs. 1500.00 Only  
For updates check [www.easvarm.com](http://www.easvarm.com)

#### **Pre-requisites**

1. Laptop with windows OS [ Win-XP proffered ]
2. Enough Free space to install VB. Net 2008 [ Trial Version ]
3. USB to Serial Converter [ Optional ]
4. VB. NET software will be provided to install at workshop.



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## Course Outline:

### Day-1 Morning

**Lec:** USB Intro, Architecture, Protocol, Bus Topology, USB Transfer Types, USB Descriptors, USB Enumeration process.

**Lab:** Hands-On Descriptors & Packet flow

**Lec:** USB Stack components and modifications, USB Classes

### Day-1 Afternoon

**Lab:** USB Demo1 firmware implementation for Target [ BlueBoard ]

**Lab:** USB Demo1 Host Application implementation in VB.NET

### Day-2 Morning

**Lab:** USB Demo2 firmware implementation

**Lab:** USB Demo2 Host Application

### Day-2 Afternoon

**Lec:** Case study [ Designing USB Bootloader ]

**Lab:** Running USB Bootloader, Virtual Com-port example

## Registration:

Batch size is limited to 20 members, so candidates are required to confirm their registration by paying complete fee as advance.

## Payment Mode:

1. **Bank Deposit:** Bank: **State Bank of India**, Name: **AJAY GOSH REDDY ARE**, A/C No. : **0000020024769162**, Branch Code: **10508, Koramangala, Bangalore**
2. **Demand Draft:** DD on Name of **“NGX Technologies Pvt. Ltd.” Bangalore** can be sent to NGX Address [http://shop.ngxtechnologies.com/contact\\_us.php](http://shop.ngxtechnologies.com/contact_us.php)
3. Once the payment is done send a mail with the transaction details to [info@easyarm.com](mailto:info@easyarm.com)

## Venue Details:

# 38, 1st Floor, 2nd Main, Ashwini Layout, E.G.Pura, Oppt. Life Style Building, Koramangala, Bangalore- 560047.

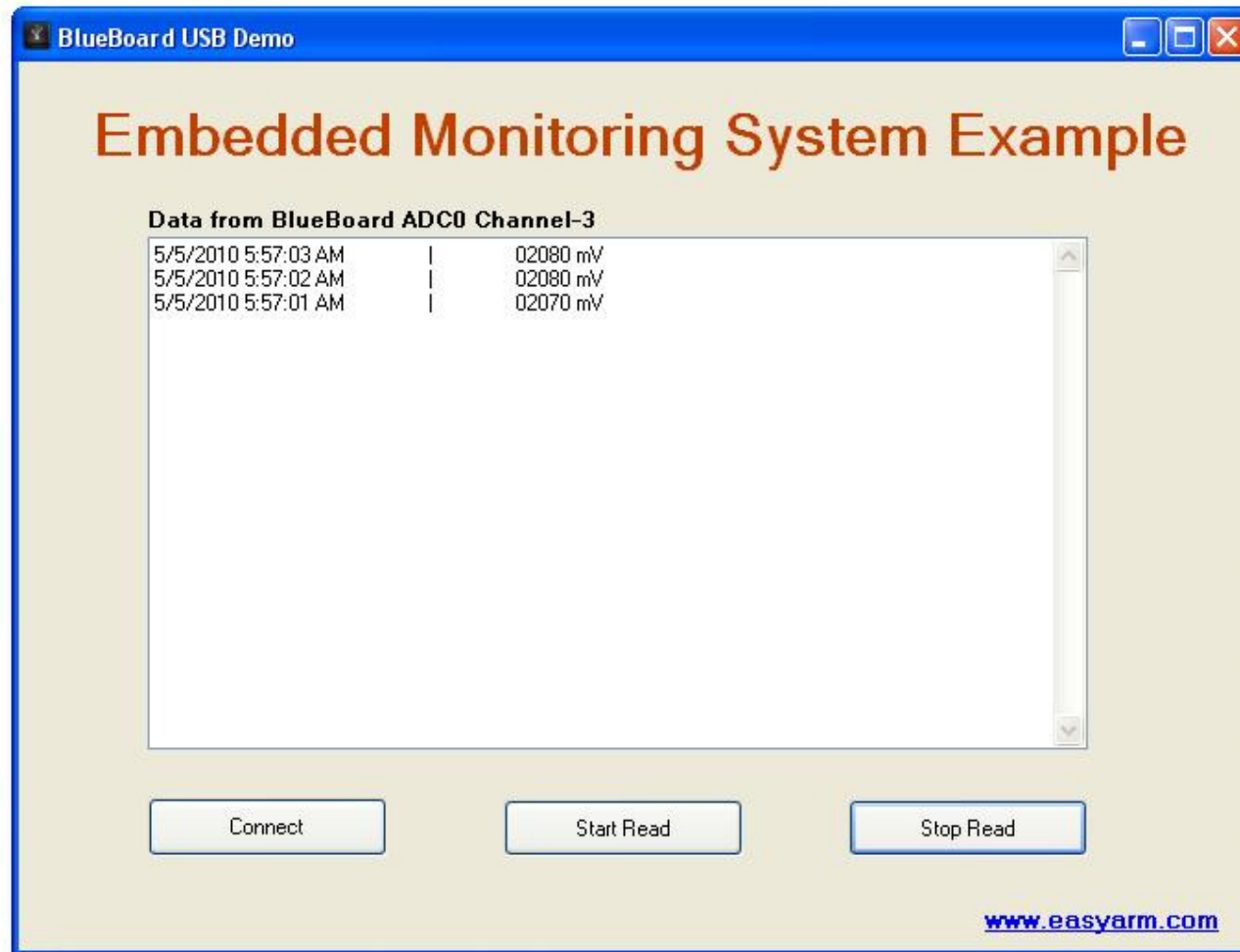
**Other Workshops:** **ARM Workshop** (2 Days), **Embedded Linux** ( 2 Days), **Android on ARM9** ( 1 Day)

**Note:** Candidates has to carry their laptop for practicals, & for any queries mail us on [info@easyarm.com](mailto:info@easyarm.com) or [info@ngxtechnologies.com](mailto:info@ngxtechnologies.com)

**We can conduct workshops at your city on demand.**

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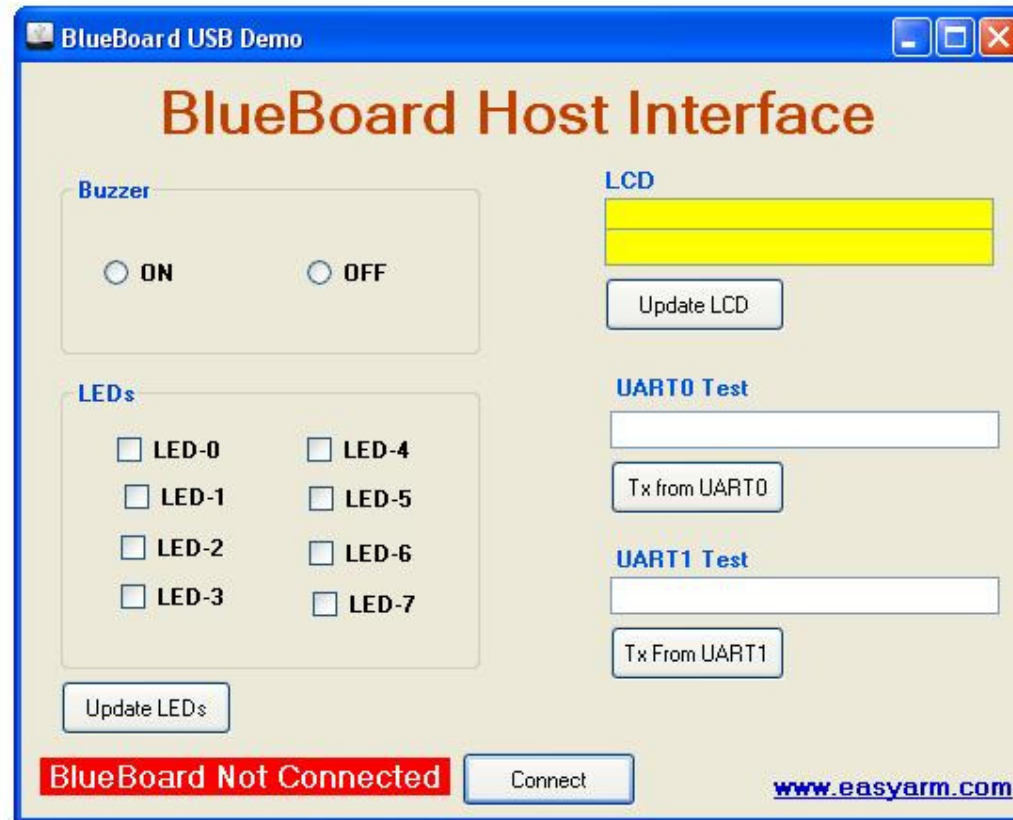
## USB Demo1



**This application shows simple Data acquisition (DAQ) using USB HID Class.**

# USB Hands-On

## USB Demo2



Application to control a given Embedded Target from your host PC.