

# Bluetooth® training solution

## What does it do?

Provides a motivating platform for learning about micro-controller programming and the Bluetooth standards.

## Benefits

- Highly motivating
- Accessible to all many levels of student
- Teaches about Bluetooth from a practical point of view
- Provides rapid access to Bluetooth technology

## Features

- Complete Bluetooth training solution
- Allows investigation of Bluetooth protocols and stack
- Includes a range of E-blocks boards
- Programmable with Flowcharts - key macros supplied
- Sample programs in easy to read flowcharts are provided
- Includes teacher's manual

## Description

This training solution, built from E-blocks technology, allows students to carry out investigations into the Bluetooth standard using high level macros written in Flowcode. The solution consists of two fully working Bluetooth systems - made up from E-blocks - with Bluetooth transceivers and CODEC boards. Students use these two systems and Flowcode macros to investigate various Bluetooth protocols and functions including the serial protocol (SPP), local area protocol (LAP), and the headset profile (HPP). In addition to this other protocols in the Bluetooth stack such as SDP, RFCOMM, and GAP can be examined.

A CODEC interface for transmitting digital audio signals is included. All aspects of the Bluetooth device, such as page scanning, authentication, identification, pairing and SCO channel setup are easily controlled via AT commands and/or device registers.

A teacher's manual is provided with the system which covers system set up, Bluetooth theory, and a range of Exercises for students to work through - with fully worked solutions. A CD ROM is included with a number of example files.



## Learning time

Dependant on course structure and options chosen from the teacher's manual. Approximate figures:

20 hours.

## Prerequisites

- Some understanding of electronics
- Windows skills
- Flowcode skills

## Manual

An 80+ page manual is supplied with this product with a range of suggested student activities and sample files on CD ROM.

## System requirements

PC with CD ROM drive and Windows XP or greater.

## Further information

A separate datasheet is available for each of the E-blocks boards included in the pack. Please see our web site for details.

## Order code

The order code for this product is EB860.

## Also consider

Our Digital Communications solution teaches students all about the fundamentals of TCP/IP and internet related technology, communications, and protocols.



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## Learning objectives

The Bluetooth solution is a motivating application that can be used for many areas of investigation including:

- Data communication between microcontroller and Bluetooth modules
- AT command structure and programming strategy in AT controlled systems
- Bluetooth visibility
- Device discovery, pass keys and addresses
- Responses - sequence flow and error checking
- Connecting and pairing
- Data communication
- Using Bluetooth for control applications
- Audio and implementation of the audio gateway
- Headset and telephone profiles
- Security

An 80+ page teacher's guide covering these topics - with exercises and worked solutions - is included in the pack.

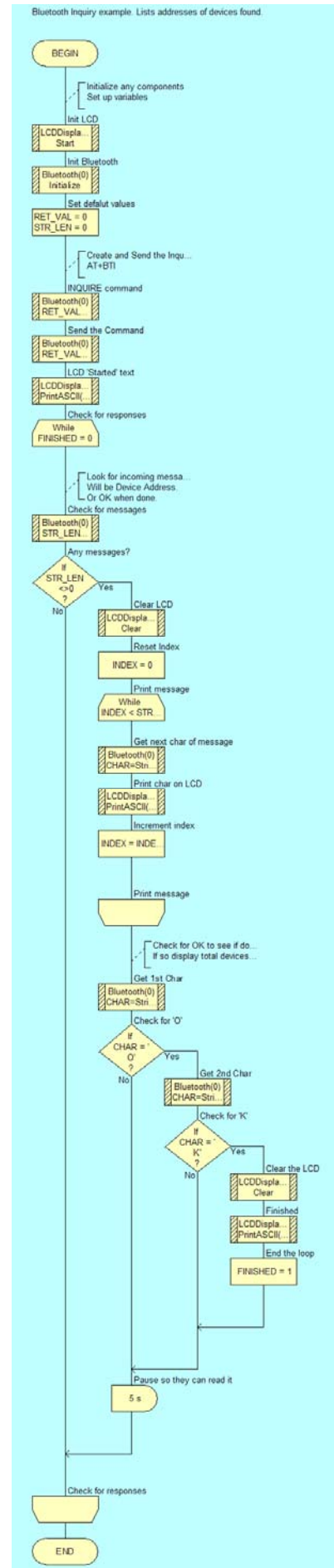


The Bluetooth E-blocks board is at the heart of the training system.

## Pack contents

The table below gives a list of the pack contents. Datasheets on any individual item are available on request.

Tray Qty	Code	Description
1	1 BP232	E-blocks backplane - tray compatible
1	1 EB00400	E-Blocks LED board
1	1 EB00500	E-Blocks LCD board
1	1 EB00600	E-blocks USB Multiprogrammer
1	1 EB00700	E-Blocks Switch board
1	1 EB01400	E-blocks Keypad
1	1 EB02400	E-blocks Bluetooth board
1	1 EB03200	E-blocks CODEC board
1	1 EB634	E-blocks IDC cable
1	1 EB704	E-blocks LED board cover
1	1 EB705	E-blocks LCD board cover
1	1 EB706	E-blocks PICmicro multiprogrammer cover
1	1 EB707	E-blocks switch board cover
1	1 EB714	E-blocks Keypad cover
1	1 HP16F877	PIC16F877A
1	1 HP2045	Shallow plastic tray
1	1 HP3844	Foam insert for trays
1	1 HP4039	Lid for plastic trays
1	1 HP9734	Cardboard box for trays
2	1 BP232	E-blocks backplane - tray compatible
2	1 EB00500	E-Blocks LCD board
2	1 EB00600	E-blocks USB Multiprogrammer
2	1 EB01400	E-blocks Keypad
2	1 EB02400	E-blocks Bluetooth board
2	1 EB634	E-blocks IDC cable
2	1 EB705	E-blocks LCD board cover
2	1 EB706	E-blocks PICmicro multiprogrammer cover
2	1 EB714	E-blocks Keypad cover
2	1 HP16F877	PIC16F877A
2	1 HP2045	Shallow plastic tray
2	1 HP3844	Foam insert for trays
2	1 HP4039	Lid for plastic trays
2	1 HP9734	Cardboard box for trays
2	1 HPPSU2	Adjustable power supply
3	1 EB216	Pack of 100 M3 anti-slip nuts
3	1 EB217	Pack of 100 M3 12mm pan head screws
3	1 EB238	USB Bluetooth adaptor
3	1 EB565	Bluetooth teacher's manual
3	1 EBPUB	E-blocks publicity sheet
3	1 ELSAM	ELSAM mini CD ROM
3	1 FC783SI	Flowcode Bluetooth component
3	1 HP2045	Shallow plastic tray
3	1 HP233	Hardware Warranty card
3	1 HP3844	Foam insert for trays
3	1 HP4039	Lid for plastic trays
3	1 HP9734	Cardboard box for trays
3	1 HPUSB	USB lead
3	1 TEFLCSI2	Flowcode for PICmicro MCUs v2



Flowcode is used for all exercises