ezBT – Bluetooth library for the ezAcclaim family

Abstract

ezBT is a light weight Bluetooth library providing easy integration into any application intending to use Bluetooth as wireless communication media. The application designer doesn't has to take care about all the inner works of the Bluetooth protocol stack, they will be handled by the ezBT library. To open/close a communication channel to an other Bluetooth device and to send/receive data to/from the remote device, the application designer just has to use some API calls and implement a few callback functions notifying the main application about Bluetooth events.

ezBT is implemented according to the Generic Access Profile from the Bluetooth specification v1.1.

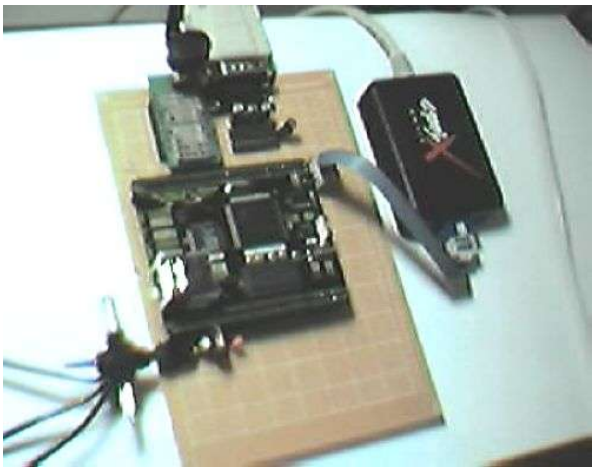


Fig.1 Top view of the ezAcclaim board and the Bluetooth module

Implementing the Bluetooth stack lower layers HCI and L2CAP, ezBT handles all operations required to communicate over Bluetooth: managing baseband connections, logical channels, packet segmentation/reassembly and provides 57600 bps data rate through the radio link.

ezBT is completely configurable, the number of baseband ACL links and the number of logical channels for each baseband connection is set up in a configuration header file.

ezBT is covering all the tedious tasks of connection management and data segmentation / re-assembly, which is common in all Bluetooth applications. Because of the wide variety of Bluetooth profiles and each of them having a different requirement regarding how much of the upper layers of the protocol stack has to be implemented, ezBT leaves to the application to implement as needed the higher layer protocols such as SDP, RFCOMM or TCP/IP.

ezBT has a modular design, it is possible to run it from an RTOS or from "bare" embedded systems.

The library is coming with a small demo application, presenting how to integrate ezBT. The ezAcclaim development board (running the ezBT library) was connected through a serial cable to a terminal program from a PC. On an other PC was running the OGENEK Bluetooth stack advanced demo application (included in the package). The PC running the terminal program was sending through its UART numbers, indexing ezBT API calls, triggering different actions in the ezBT library. With this demo setup I've realized Bluetooth connections and data transfers initiated both from the PC running the OGENEK stack and from the the terminal program.

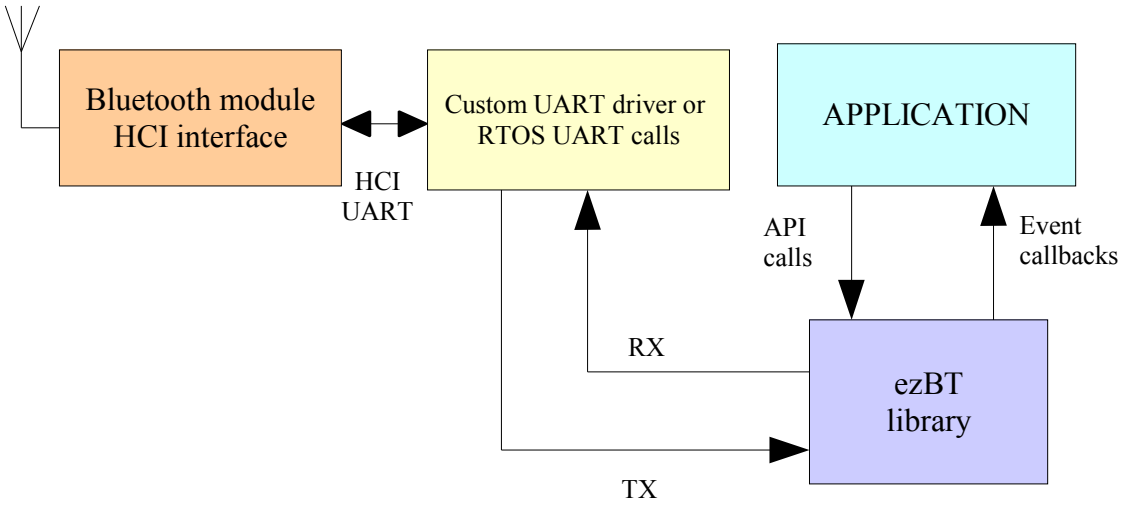
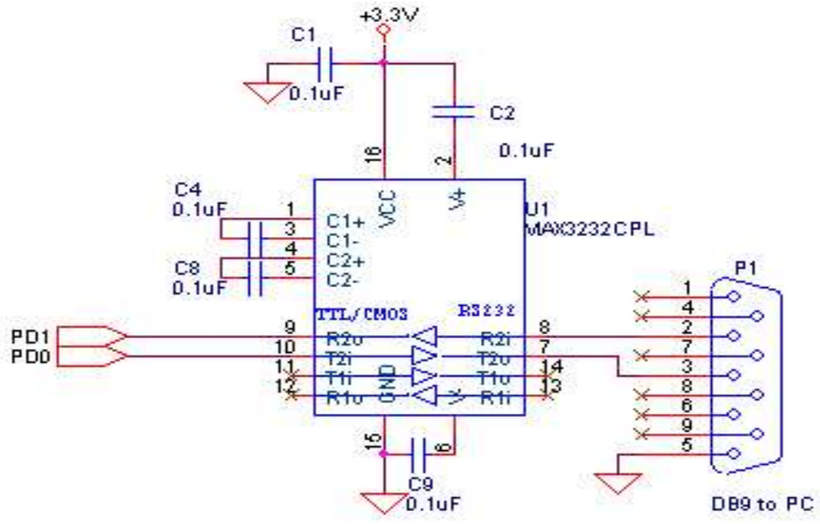


Fig.2. Typical application / ezBT library integration block diagram

NOTE: the eZ80F91 module is inserted in the typical application motherboard described in the Zilog documentation



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