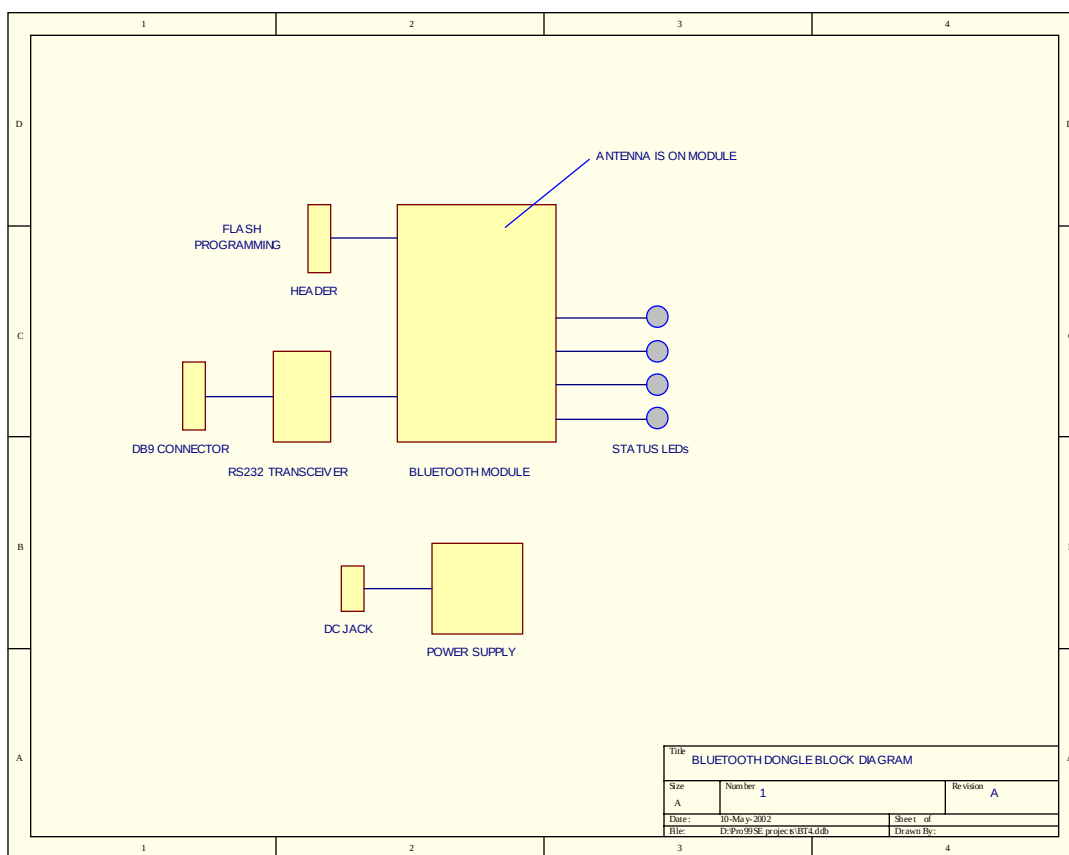


## Bluetooth Design

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### Block Diagram



### Theory of Operation

The Bluetooth Module (BTM) is one end of a wireless link. It is controlled by an on board embedded microprocessor and communicates to the host computer via the RS232 Serial link. The BTM is supplied to Smart Technologies as a complete pre-tested module by Mitsumi Electronics Corporation. The BTM software is provided by Cambridge Silicon Radio CSR and modified by Smart Technologies. The host computer software is also supplied by CSR and modified by Smart Technologies.

A bank of LEDs is provided to display system status.

The FLASH Programming interface connects to a computer parallel port via a special FLASH programming cable supplied by Smart Technologies. Programming of the BTM is controlled by a CSR utility program running in the PC.

The Power Supply is designed in 2 stages as follows:

- o The pre-regulator ( Switch Mode Power Supply - SMPS ) accepts a 4.9V to 18V DC voltage from an external wall mount power supply and regulates down to 3.3V
- o The second regulator is a linear, Low Drop Out ( LDO ) type. It accepts the 3.3V from the pre-regulator and provides a further regulated 3.0V to the BTM.

Only the BTM is supplied by the 3.0V LDO, all other chips are supplied by the 3.3V pre-regulator.

### **Input/Output Specifications**

DC Jack, Power Input

- o Pin 1, 4.8V to 18V, typically 12VDC ~500mA unregulated (to supply both the BTM and the Sc7)

DB9 connector

RS232 signals, the data rate is controlled by software, but limited to 115Kbaud by the hardware.

- o Pin 2, Data In (from the PC) at nRXD
- o Pin 3, Data Out (to the PC) at nTXD
- o Pin 6, Handshaking (from the PC) at CTS
- o Pin 7, Handshaking (to the PC) at RTS

Power output to the Sc7 WB Controller card

- o Pin 1, Power from the BTM to the Sc7
- o Pin 9, Gnd to the Sc7

FLASH Programming Cable

The signals on this cable are of Serial Peripheral Interface (SPI standard) format

- o Pin 1, RESET from PC to BTM, pulled low (inactive), reset signal
- o Pin 2, SPI\_CLK from PC to BTM, clock signal
- o Pin 3, SPI\_MOSI from PC to BTM, serial data
- o Pin 4, SPI\_CSB from PC to BTM, device select signal
- o Pin 7, SPI\_MISO from BTM to PC, serial data

End.