Getting started with the WizziKit

Table of Contents

A.   General Statements

A.1   About Radio Emission

The WizziKit, composed of WizziMote and WizziBase modules, is intended for use for ENGINEERING DEVELOPMENT, DEMONSTRATION OR EVALUATION PURPOSES ONLY and is not considered by WizziLab to be a finished end product fit for general consumer use. It generates, uses, and can radiate radio frequency energy. Operation of the equipment may cause interference with radio communications, in which case the user at his own expense will be required to take whatever measures may be required to correct this interference.

Any use of radio frequencies and/or power availability of the WizziKit and its development application(s) must comply with local laws governing radio spectrum allocation and power limits for this evaluation module. It is the user's sole responsibility to only operate this kit in legally acceptable frequency space and within legally mandated power limitations. Any exceptions to this is strictly prohibited and unauthorized by WizziLab unless user has obtained appropriate experimental/development licenses from local regulatory authorities, which is responsibility of user including its acceptable authorization.

A.2   Copyright Notice

Any documentation and/or test / demonstration software provided with the WizziKit may not be modified, copied or distributed unless embedded on a WizziLab product. Other than for the foregoing purpose, WizziKit test / demonstration software and/or documentation may not be used, reproduced, copied, prepared derivative works of, modified, performed, distributed, displayed or sold for any purpose. For the sole purpose of embedding test / demonstration software on a WizziLab product, copy, modification and distribution of WizziKit test / demonstration software is granted provided that the following conditions are respected:

- Redistributions of source code must retain the above copyright notice and following disclaimer present on every header and source file.
- Redistributions in binary form must reproduce the above copyright notice and following disclaimer in the documentation and/or other materials provided with the distribution.
- The name of WizziLab can not be used to endorse or promote products derived from this software without specific prior written permission.

Should you have any questions regarding your right to use this Software, contact WizziLab at www.wizzilab.com.

A.3   Disclaimer

WIZZILAB'S HARDWARE DEVELOPMENT KIT ("WIZZIKIT"), HARDWARE MODULES ("WIZZIMOTE", "WIZZIBASE"), AND WIZZIKIT TEST / DEMONSTRATION SOFTWARE ARE PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS HARDWARE AND SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

FURTHERMORE WIZZILAB HAS NO OBLIGATION TO PROVIDE MAINTENANCE, SUPPORT, UPDATES, ENHANCEMENTS OR MODIFICATIONS.
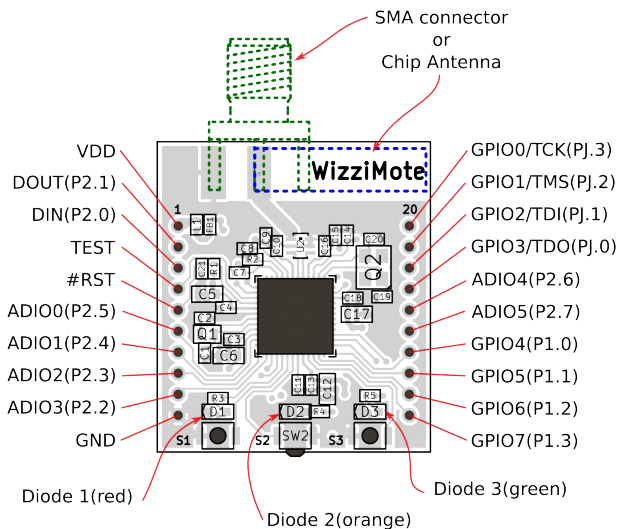
B. The WizziMote

B.1 Description

The WizziMote integrates a TI CC430F5137 and an antenna matching circuit for the 433MHz band in a compact form-factor. Moreover it should be pin-compatible with shields and devices that accept XBee modules.
The following figure describes the ports of the WizziMote (corresponding CC430 pin names in parenthesis).
Among theses ports:

- DOUT and DIN are dedicated to serial COM port
- GPIO 0 to 4 are used for JTAG access when plugged on WizziBase (but can also be used as normal GPIO if needed)
- ADIO 0 to 5 and GPIO 4 to 6 are freely configurable.

The WizziMote also features 3 LED and 3 buttons for basic user interface.
The mapping to the CC430 Pads is the following:

- D1 (red led) connected to P1.7
- D2 (orange led) connected to P3.7
- D3 (green led) connected to P3.6
- S1 connected to P1.6
- S2 connected to P1.5
- S3 connected to P1.4

The WizziMote can optionally be populated with a 32.768 KHz crystal (Q1, C1, C2).

B.2 Schematic
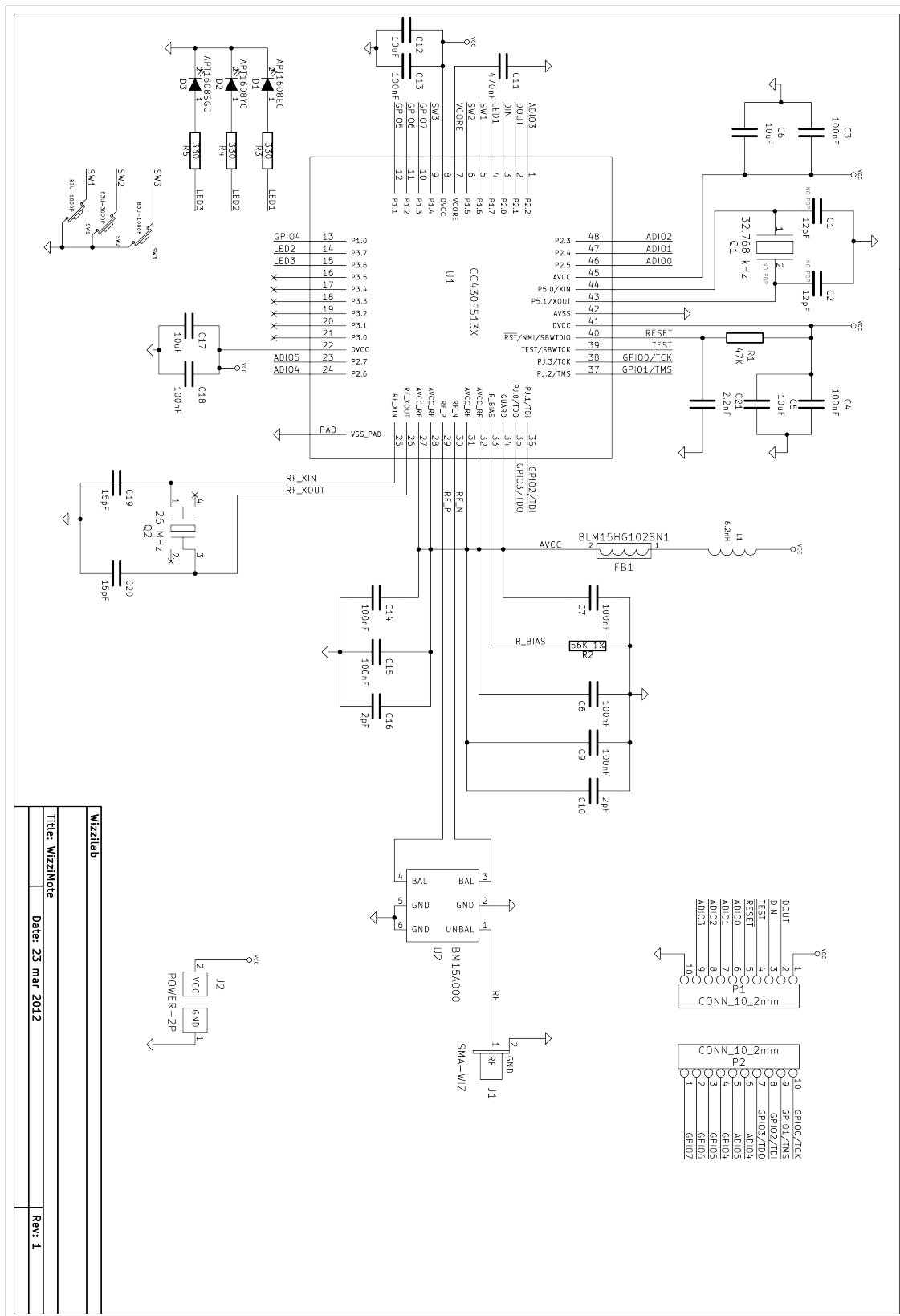
C. The WizziBase

C.1 Description

The WizziBase is a basic breakout board for the WizziMote that serves two practical purposes:
- gives access to the JTAG interface and serial interface through standards connectors
- allows prototyping with various sensors

The Wizzibase is aimed to be used with either a TI or Olimex JTAG adapter that can be plugged on P5.
Spy-bi-Wire mode can be used provided R15 is populated with a 330Ohm resistor.

An FTDI USB-to-UART cable can be plugged on P4 and will give access to WizziMote serial COM port. If a particular application needs the flow control lines, they can be connected to by populating R1 and R2 with 0Ohms resistors.
IMPORTANT NOTE: FTDI VDD can be used to power the WizziMote, in this case one has to make sure to use a 3V3 version of the FTDI cable (IOs and VDD), it could otherwise result in permanent damage to the WizziMote.

The WizziBase can provide power to the WizziMote from either JTAG, FTDI or external power plug.
The following figure describes the board and the various jumper settings.
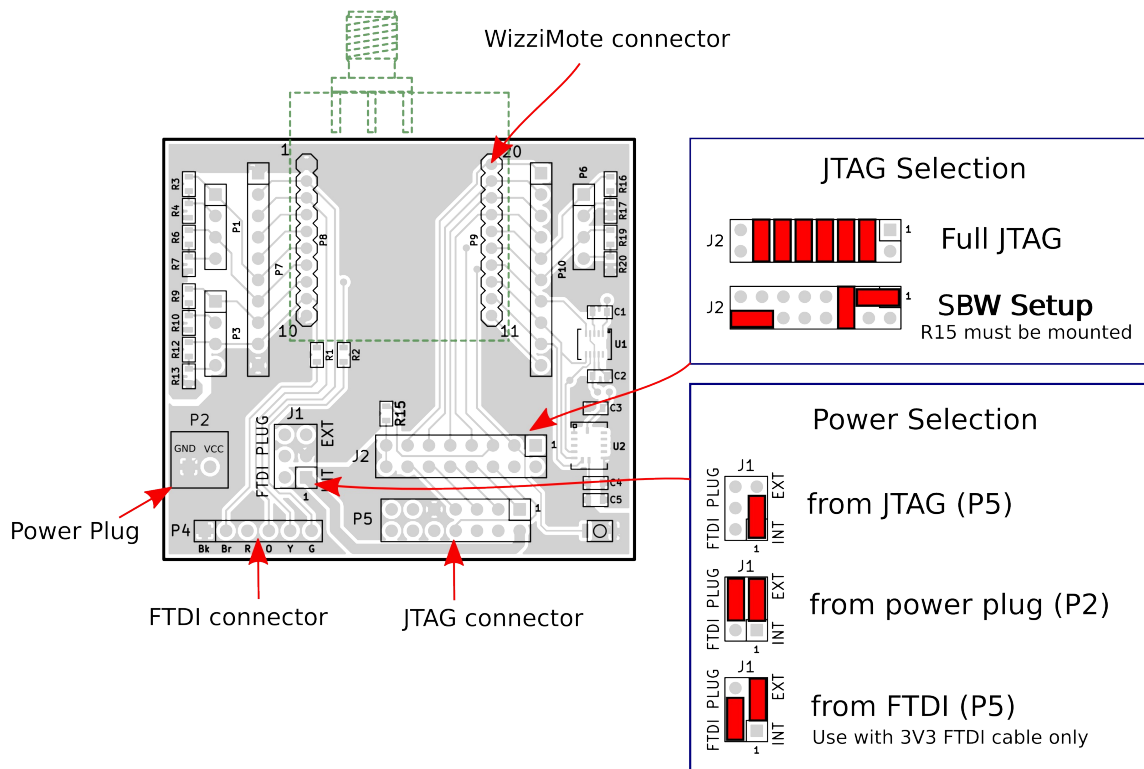
The WizziBase provides some unpopulated 0603 footprints (R3 to R14 and R16 to R21) that can be used to bias/power some 3-lead analog sensors, that can be connected through P1/P2/P6.
Two specific ICs can be mounted on footprints U1 and U2:
- U1 : MMA7660FC Accelerometer
- U2 : VCNL4010 Light/Proximity sensor

Theses sensors are sharing the same I2C bus connected to GPIO5 and GPIO7. Pull up resistors R22, R23 and R24 should be populated with 4.7KOhm resistors.

C.2 Schematic