SETTING UP BLUESENSE2 WITH ARDUINO

ARDUINO IDE

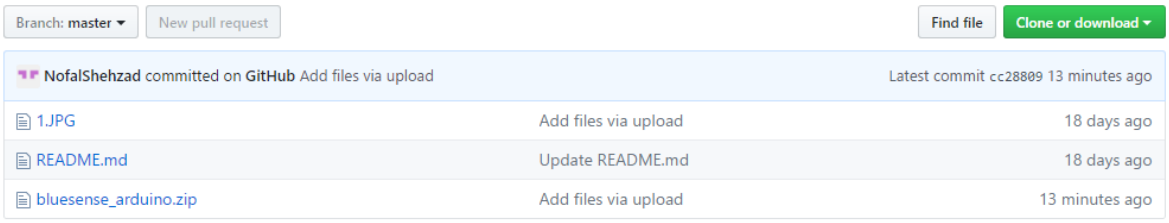
The current configuration of the setup files for the bluesense2 work best with Arduino IDE version 1.8.x. Little revision in terms of third party functionality has been made between IDE versions 1.5.x, 1.6.x through to 1.8.x, however, the set up has only been tested with the latest version as of March 2017, that being 1.8.x. Download the latest version of the IDE here:
https://www.arduino.cc/en/Main/Software

Or alternatively, 1.8.1 (and older versions) here:
https://www.arduino.cc/en/main/OldSoftwareReleases

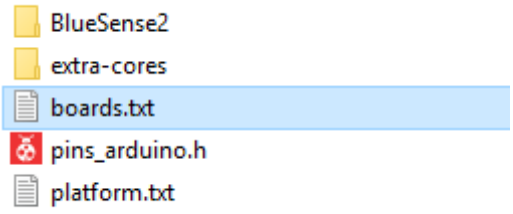
SETUP FILES AND INTEGRATION

Once the IDE has been installed, the setup files can be found and downloaded from the following github repository:

https://github.com/NofalShehzad/BlueSense2-with-Arduino



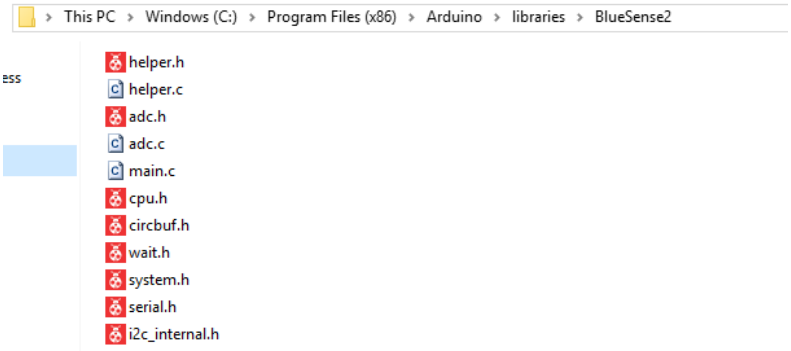
Download the *bluesense_arduino.zip* file and unzip to access the files within:



The *BlueSense2* directory contains all the firmware for the setup and will be placed as a library. The *extra-cores* folder is a modified version of the cores directory in Arduino, includes modified functions. The *boards.txt* and *platform.txt* files define the board and edit the build process respectively. The header file *pins_arduino.h* is used for pin mapping.

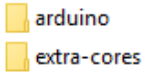
PLACING FILES

Find the Arduino IDE's root directory, usually it's placed under *C:\Program Files (x86)\Arduino* on a windows machine.

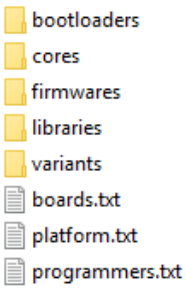


Place the *BlueSense2* folder from the setup files inside the libraries directory *C:\Program Files (x86)\Arduino\libraries*, so that the bluesense firmware is contined within the directory *C:\Program Files (x86)\Arduino\libraries\BlueSense2.*

Next place the extra-cores folder in the following directory:
..*Arduino\hardware\arduino\avr\cores*
Such that there are then two cores directories, the standard *cores* and the modified cores for the bluesense called *extra-cores*.



The *boards.txt* and *platform.txt* files need to replaced in the following folder, with the ones provided in the setup files: ..\Arduino\hardware\arduino\avr



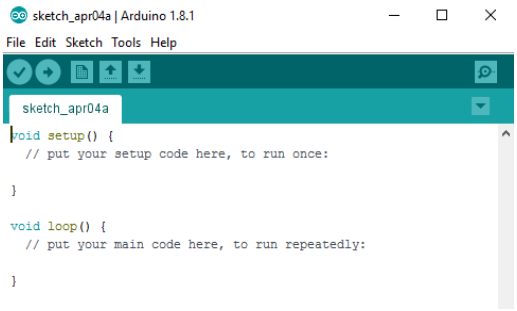
Or alternatively, if you don't want to replace the files, the *boards.txt* can have the BlueSense2 definitions appended, likewise the build process changes can be added to the *platform.txt* manually if needed.

The last that needs to be added is *pins_arduino.h*, which needs to be placed inside:
..*Arduino\hardware\arduino\avr\variants\bluesensev2*

For this you'll need to navigate to the variants directory and create a bluesensev2 folder and place *pins_arduino.h* inside, such that it is located as follows:

..\Arduino\hardware\arduino\avr\variants\bluesensev2\pins_arduino.h

USING THE IDE TO COMPILE A SKETCH



Open the IDE. Now the IDE needs to be used to select the board, import the firmware as an Arduino library.

The COM port for Serial communication on which the board is connected over USB needs to specified. This can port can be found using *Control Panel>Device Manager*, look for *USB Serial Port* under *Ports*. This can be done in the IDE using *Tools>Ports*.

The programmer needs to be set to AVRISP mkII, *tools>programmer>select AVRISP mkII*. In order for this to work, the device drivers need to be installed and set up as per the *bluesense2.pdf* old guide.

Next select, the board, *Tools>boards>bluesensev2*. This has been made available by `boards.txt`. You may need to scroll to the bottom of the list to find the name.

COMPILING A SKETCH AND UPLOADING IT

Note, for now, a bootloader has not been integrated, therefore the IDE can only be used to compile a sketch. For instructions on how to upload see old *bluesense2.pdf* guide using Atmel Studio 7.

To compile a sketch, first include the firmware, *Sketch>Include libarary>BlueSense2*, scroll down to '*contributed*'.

The void `setup()` and `loop()` functions can contain user code for upload. To test the board, flash some LEDs using the following simple program:

In order to find the output hex file and uploading, enable verbose compilation on the IDE and upload using Atmel Studio.