Sleep Position Sensor

The hardware setup relies upon the links between the accelerometers and the bluetootooh module and the PSoC. We will describe the main connections (also visible on the pcb schematic on the left) for clarity.

Bluetooth

Rxd is linked to Port 0.7

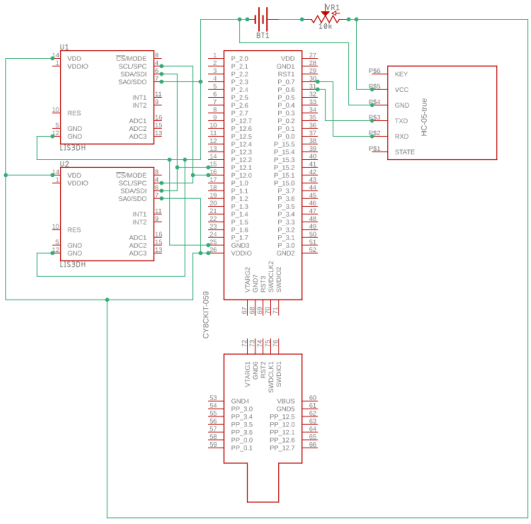
Txd is linked to Port 0.6

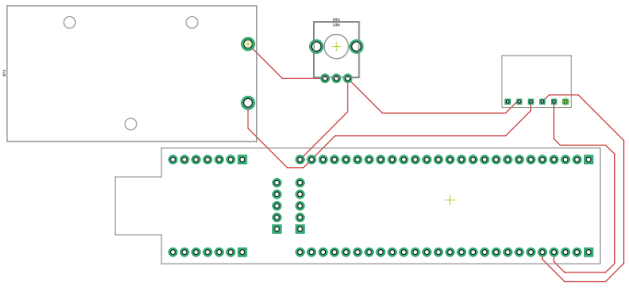
Accelerometers

Scl are linked to port 12.0

Sda are linked to port 12.1

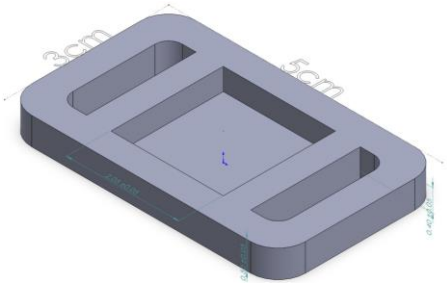
Notably, since both accelerometers are linked to same ports, in order to distinguish them we linked the Sdo of one accelerometer to the Power line, and the other one to the Ground line.

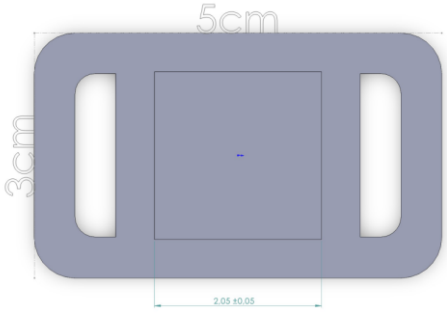




This board (on the right) is included in the documentation only for detailing purposes, since we did not produce a pcb (as it would have been superfluous). If one wanted to do it, only the components shown here (psoc, voltage transformer, bluetooth module and battery) would be needed, while the accelerometers would still need to be linked using external cables.

Accelerometers casings





The casing model were created using solidworks and were then printed using the automaker software.

Final setup

After positioning the sensors inside the casings, we used velcro bands of customizable length to place them around the chest and the left ankle. Long cables (2m) were used to bring the signals to the PSoC and from there the bluetooth module sent them to the pc.