

Living - a smart home Hub

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What is Living?

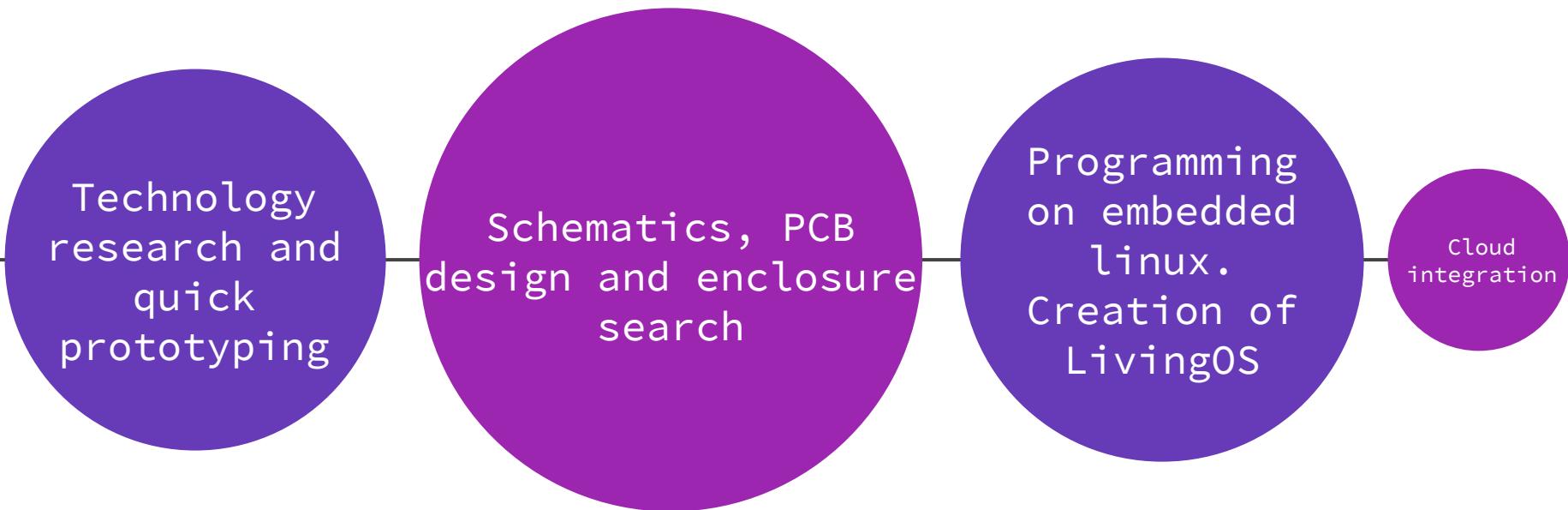


Live smart, without limits.

Living is a smart hub designed for my former company AR-Smart. Living was the connection with all the smart home devices that supported Z-wave, wifi or bluetooth.

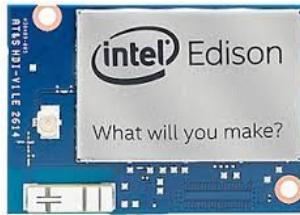


Designing Living



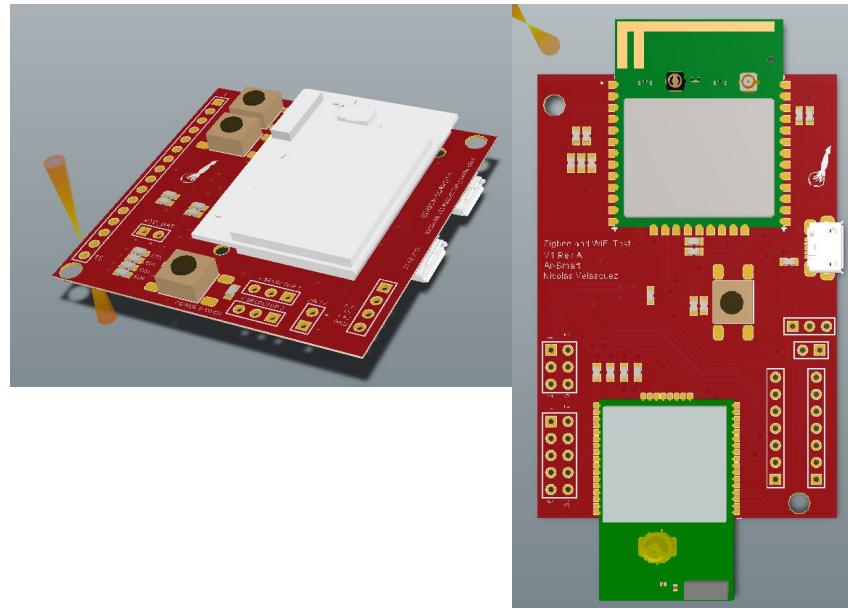


zigbee



Technology

- Intel edison board chosen over more popular boards like raspberry, because it fitted better into a final product.
- Zwave and zigbee tested, but Zwave chosen because of the large number of compatible products



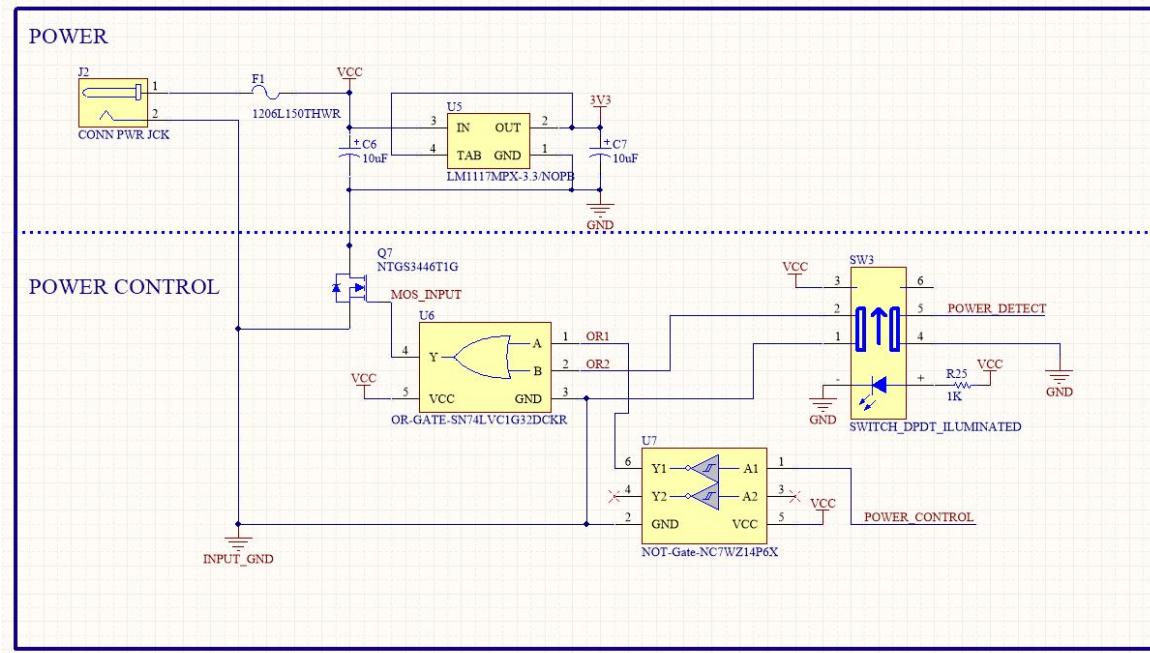
Prototyping

- Before choosing technology, couple of board were made to test Intel edison (left), and zigbee and wifi module (right)

Power on challenge

As the intel edison had an embedded linux, the idea was to be able to turn it off in a safe mode (not cutting current, but doing a proper poweroff in the embedded OS).

This was achieved implementing this circuit ->

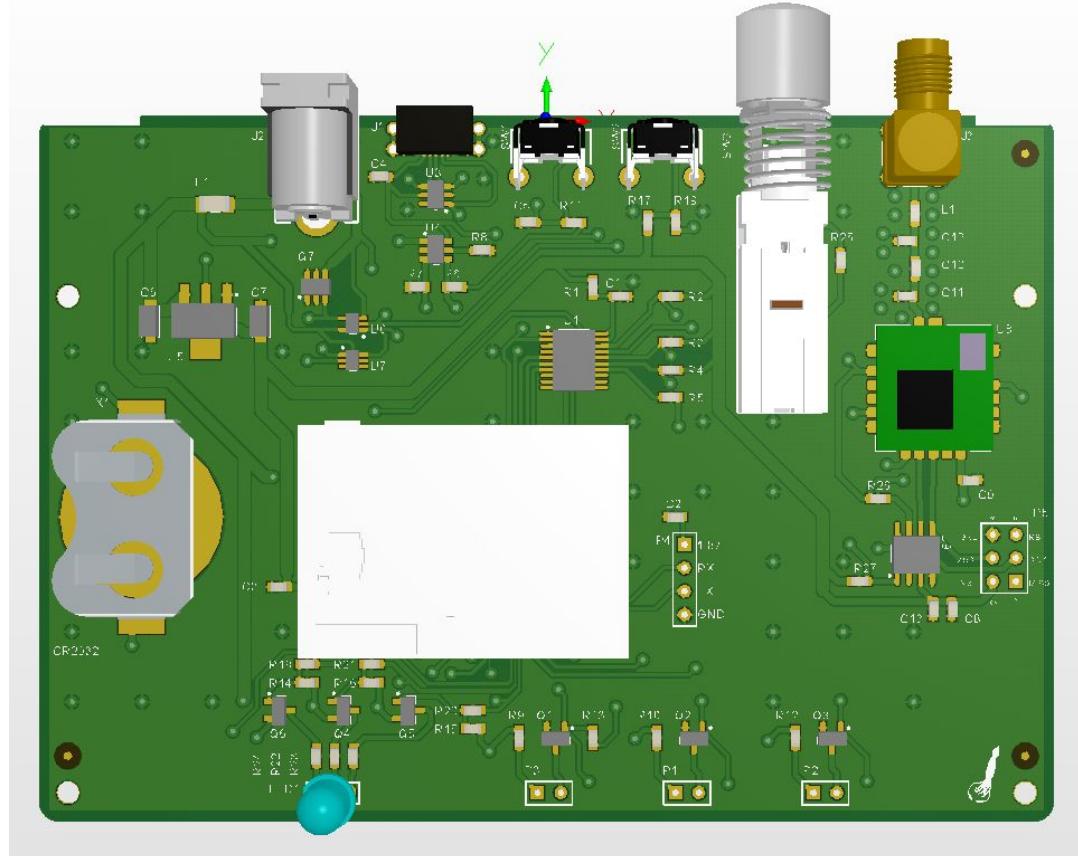


THE POWER CONTROL OBJECTIVE IS THAT THE EDISON HAS TIME TO POWER OFF IN A SAFE WAY
USING THE POWER_DETECT SIGNAL IT CAN POWER OFF AND THEN THE POWER_CONTROL SIGNAL IS PULLED DOWN
POWER_CONTROL SIGNAL IS ALWAYS HIGH WHILE THE EDISON IS ON

PCB Design

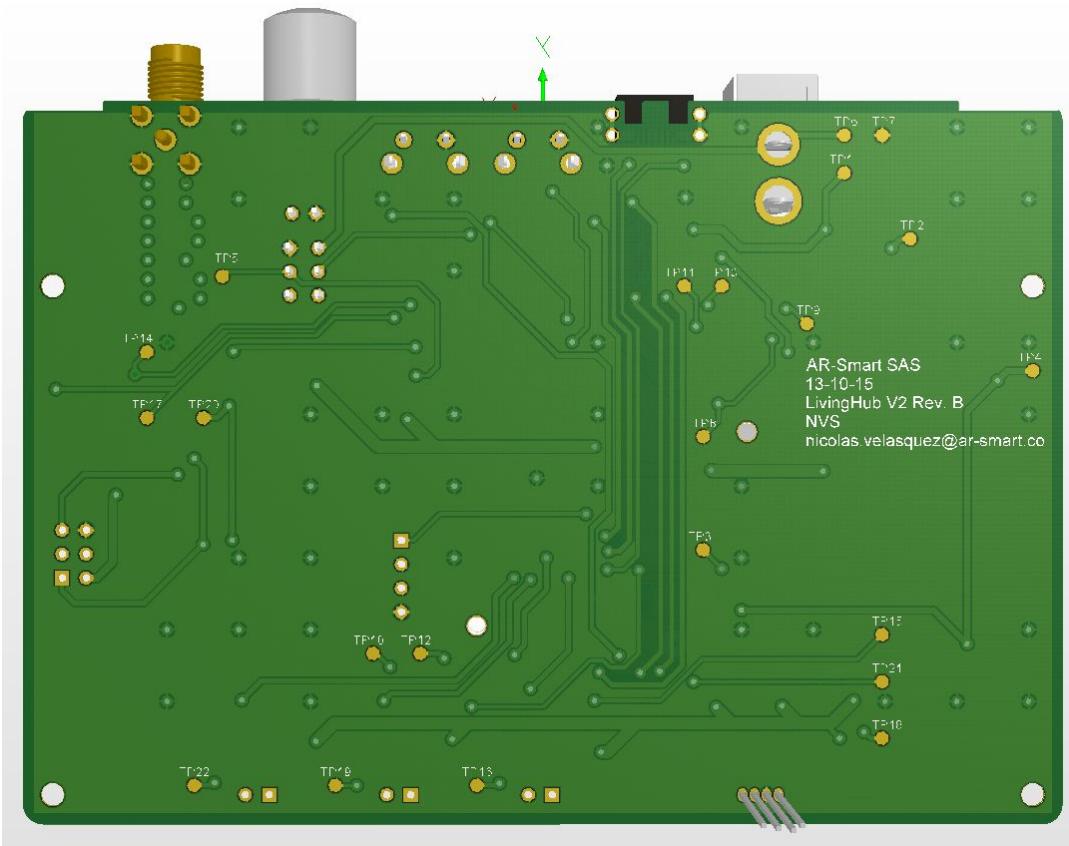
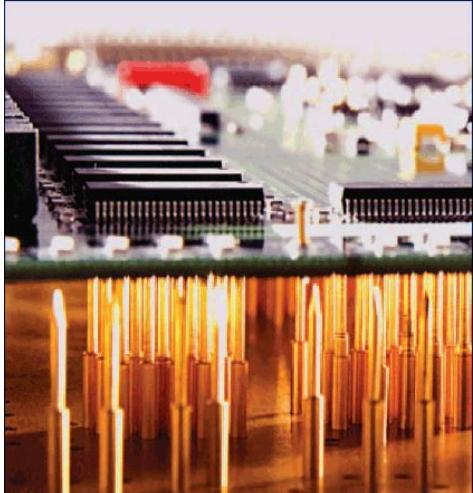
Space was not a restriction.
That's why all the components were
put on the top face. In this way
the assembly process would be
cheaper as is only one face.

Fiducials on 3 corners improve the
accuracy of the automated
assembly.



PCB Design

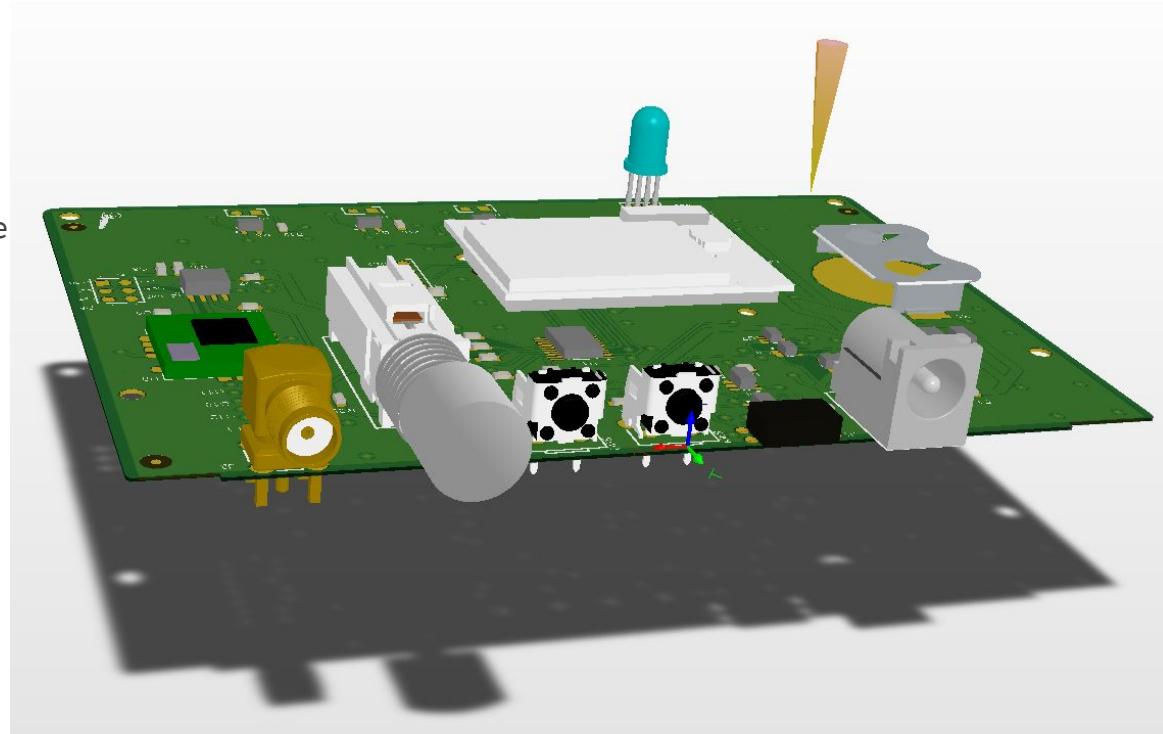
Bottom face had several testpoints for a nail bed, for easy testing and programming of all the system.



*The project ended before the nail bed was created

PCB Design

Designed in Altium. 3d Views helped selecting and fitting the enclosures. Acrylic with the shape of the PCB was cutted with laser before the manufacturing to test in sample enclosure.



Enclosure

For the stage of the project a custom made enclosure was not possible. I was in charge of the selection (Takachi Enclosure) and giving all the technical specification for the customization.

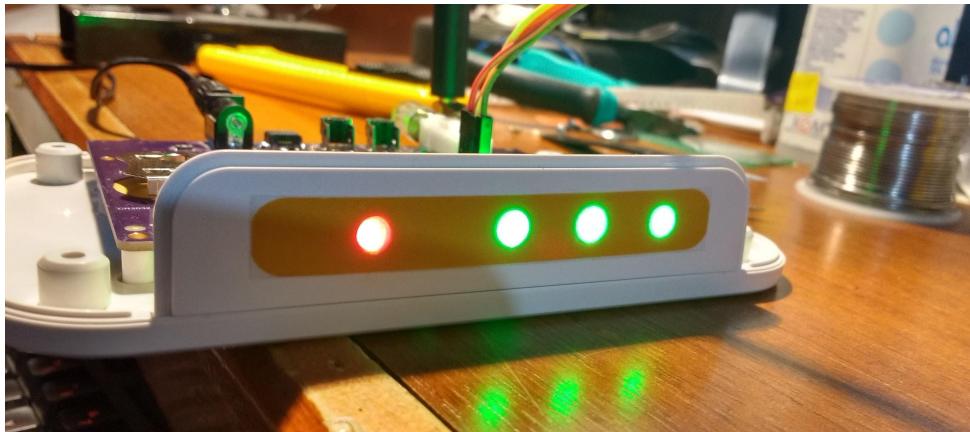


Several ideas for the PCB and enclosure were taken from an old TPlink modem.



Embedded Programming

For the embedded software a mixture of c and python was used. I was in charge of the C programming, and building LivingOS, a tailored embedded linux version using the Yocto Project.



yocto •
PROJECT

Final form







Intel demo day 2016

Intel gave us an space to show Living. In that
Demo Day we were the only company that showed
a device Made In Colombia



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