Final year project proposal

Name of the project:

Wireless Li-pol battery charger manager

Project field:

Hardware and Software Electronics development

Description of the project:

The goal of the project is to design and make a battery manager for small radio controlled drones / airplanes.

This should include:
- doing research on the market, finding potential customer needs
- defining product requirements an calculating budget
- designing the product (designing schematic and printed circuit board, writing software for the microprocessor)
- assembling prototype and testing it in real life conditions (in the airplane)
- making research on legal requirements for putting product on the market

The project counts with building 3 prototypes, 1 for software development, 1 for testing in the airplane and 1 for external testing. Schematics and the circuit designs should be kept open – source, allowing other developers to improve and use the design.

Product requirements:

The work on the project has already started few days ago, therefore basic product requirements have already been defined:

The battery manager should:
- support 1 cell Li-pol batteries
- have a wireless charger
- have step up/boost converter on the output with a magnetic switch
- be controlled by a microprocessor
- have a size smaller than 30x30mm (without a coil and a battery)

Budget requirements:

Battery manager:

- PCB and stencil manufacturing:	25 USD
- Shipping of the PCB and stencil:	25 USD
- Components for 3+2 prototypes:	125 USD (estimated)
- Shipping of the components:	0 USD (orders above 100USD have free shipping)

Equipment for development:

- Wireless charger:	40 USD (estimated)
- Soldering and measuring equimpent:	0 USD (borrowed from KEA)
- STM32L0 development board	0 USD (already owned by the developer)
- Airplane for testing	0 USD (already owned by the developer)

The sum of all expenses: 215USD

The prices of the components have been calculated without VAT. The number of components is purposely bigger (increased by 2), this is due to losses during development and testing.

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