



Project title: Tracking the coffee: from production to the cup and backwards with IoT, Blockchain, and cryptocurrencies

Number of students (minimum 2): 3-4

Project duration (1-6 months): 6 months

Project frame (Bachelor/Master, small project): Bachelor/Master

Background:

At thethings.iO we are working on the asset tracking vertical with several clients. Using thethings.iO IoT platform and different connected hardware it is possible to track a product from warehouses, shops, clients, thefts, among other situations.

Nevertheless there are specific products (such as food) that needs a more trustworthiness system for the tracking. Blockchain can help to improve the trust with the current IoT system that thethings.iO is introducing.

The challenge:

The necessity to improve the working conditions of coffee exporting countries combined with the high demand of this product in the world opens a great opportunity to work hand in hand with technology. In the case of the high quality coffee, where production, field and manufacturers need to be tracked, it's the perfect scenario to bring up state of the art tracking technologies to improve the trust and transparency. The goal of the project will be not only to track coffee manufacturers, exportation and further steps but also to show all of this with transparency and traceability to the high quality coffee drinkers. We want to enable them to reward coffee producers meanwhile they taste a perfect espresso.

We pretend to connect the farmers with the final client, and backwards. The espresso client should be able to know each step of the production line, starting at the very beginning (when the farmer collects the grain or even previously) until the cup of espresso is on the table, ready to be tasted. Moreover, we do a transparency exercise: The farmer is flesh and blood and we want the client to know the names and surnames who made it possible. In addition to this, we want to implement a way to feedback this chain and reward the farmer or the group of farmers with a cryptocurrency.

This challenge brings us the opportunity to implement a technology widely used these days: Blockchain. Blockchain is massive replicated database formed by blocks where each other is linked by cryptography. Nobody can delete neither modify data, it's transparent and secure. That way, when a client checks the steps of the production line he or she has the certainty that the coffee comes from the field, manufacturer and country that the distributor says and with a certain working conditions for the farmer. The way to implement it would be with smart contracts.

The challenge is the merge of a Blockchain system with thethings.iO IoT platform and to set up a pilot in Colombia in order to trace all the way from the coffee plant harvested by the farmer (name and surname) till the coffee that you dranked this morning. Enabling the connection between you and her.



The main goal of the project will be to enable this integration and test it on production with an existing client of thethings.io that needs to track the provenance of their product, from the field (agriculture) until the final client consumption moment.

The company:

NEXT BIG THING LABS SL (<https://thethings.io/>)

Supervisor:

- Marc Pous (marc@thethings.io)

Marc is currently the CEO and co-founder of thethings.io [<https://thethings.io/>], the most simple enterprise IoT platform.

Marc is a member of the Internet of Things Council and he is also responsible for managing the IoT communities in Barcelona [<http://iot.barcelona>] and Munich, organizing meetups and inviting up-and-coming startups to pitch their products. Furthermore, he is responsible for co-organizing the international event IoT Stars [<http://iotstars.com>] during the MWC.

He creates IoT products as a hobby, from a connected sofa for a music festival, beer mugs in Munich's Oktoberfest to Christmas lights that light up when you tweet @thethingsIO. His advocacy efforts for the Internet of Things and his stature (6,9 feet) has earned him the nickname IoT Giant. You can follow and ping him at his Twitter account @gy4nt and on @thethingsIO.

Candidate background:

We are looking for 3 or 4 candidates than can help us with the integration of the Internet of Things, Blockchain and cryptoeconomics to make this project a reality.

It would be desirable that the candidates of this project have Computer Science background and passion for the IoT and Blockchain. If the candidate has economics plus computer science profile it's desirable to have some knowledge on cryptoeconomics.

Nevertheless the most important is that the candidate is eager to learn and be as much proactive as possible to make it happen! And if you like coffee you will enjoy it even more :)

References and complementary description:

- The Craft and Science of Coffee, Britta Folmer