***Tell us about an embedded system that does not exist. It can be grandiose or strange; it can be something just one step beyond what you have around you. Ideally it is something you personally want to build (even if physics doesn’t allow it). If you have a final project in mind, you can start on that. If not, be imaginative, reality does not need to apply here. What is it? What does it do? What general components do you need? This should be summarized in 3-6 sentences. Then make at least one block diagram describing the system as discussed in Chapter 2 and the associated lectures. More diagrams are better.***

**Automatic Power Consumption Reader**

The power consumption in houses in São Paulo, Brazil, is manually measured by electric power company employees who go house-by-house and needs physical access to the light-meter to generate the electricity bill.

The proposed idea is to eliminate this burden of having to visit every home in a given neighborhood. To reach such goal will be used a smart system which consists of a device installed in the light-meter to read the consumption and transmit the value to an external device.

This installed device will have a camera which will capture the image of the digits representing the consumption. Such image will be stored in a database in the device memory and will be processed by a Machine Learning algorithm on the edge which will be a trained model to recognize digits (OCR). Once processed, the read value will be transmitted to an external device through a Long Range (LoRa) network, which will enable the company employee read dozens of devices at once.

Diagrama

Descrição gerada automaticamente