



Smart postbox

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Overview

When people talk about “the next big thing,” they’re never thinking big enough. It’s not a lack of imagination; it’s a lack of observation. Case in point: The buzz surrounding the **Internet of Things**. But here’s what I mean when I say people don’t think big enough. So much of the chatter has been focused on machine-to-machine communication (M2M): devices talking to like devices. But a machine is an instrument, it’s a tool, it’s something that’s physically doing something. When we talk about making machines “smart,” we’re not referring strictly to M2M. We are talking about sensors. The Internet of Things really comes together with the connection of sensors and machines. That is to say, the real value that the Internet of Things creates is at the intersection of gathering data and leveraging it.

You might start to see the implications here. What can you achieve when a smart car and a smart city grid start talking to each other? We’re going to have traffic flow optimization, because instead of just having stoplights on fixed timers, we’ll have smart stoplights that can respond to changes in traffic flow.

This is just my point of view on Internet of Things as a general idea, my project targets one of the smart home applications that could ease everyone’s day life and as always technology makes us more lazy !

Specifications

By placing the whole system in your mailbox , it can detect the presence of a new post .The connection between the hardware system and the mobile app is built over the internet using one of the most famous maker’s piece “ ESP8266”.

I used ultrasonic as my main sensor , which provides me with data that i can easily interpret to serve my project goal.

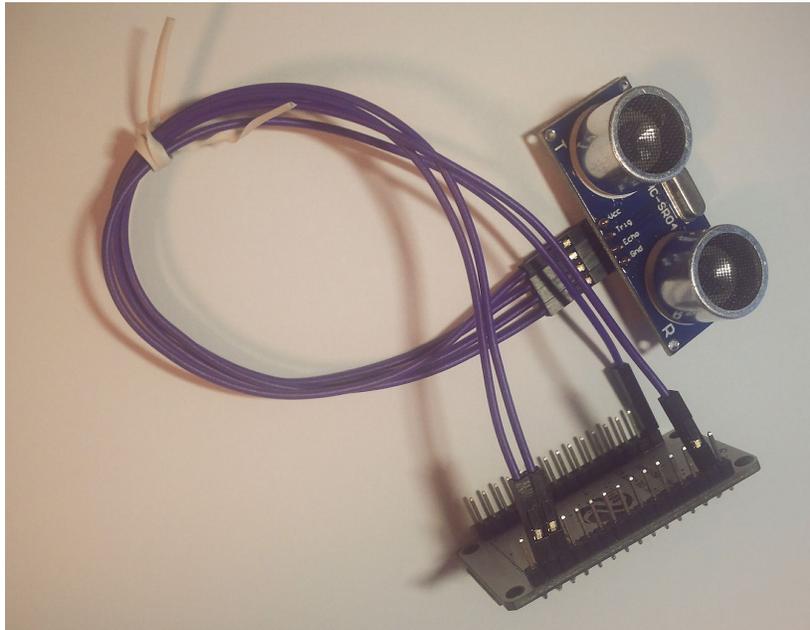
Using Blynk to build up my mobile app , was a wise move since it provides the ease of building your app in few minutes plus the security that it provides the option to setup security policies tied to your specific needs (MAC, IPs, login names, etc). You can also make it accessible only within your private network.

Getting the system to work power efficient was a bit tricky and took me a while , since there should be some coding tricks and some hardware modification as well.

ESP8266 needs around 70mA to work while connecting to the WIFI and around 80 mA to send data over the WIFI ; which is not a power efficient system in that case since it will last around 2 days with a Lithium Battery.

I turned to use one of ESP specific APIs which is “deepsleep” , it puts the chip in specific time in deep sleep mode after that it restart the code from the beginning so i have to put that line of code in the end of the loop .

Using this API i managed to get the system working with around 15mA most of the time and 80mA only for the few seconds the device send data over WIFI , which gave me around one week of continuous powered on without recharging the battery.



The overall hardware cost less than 10\$, I picked carefully the cheapest components just to show that you can turn your home to smarter one within low cost materials.

