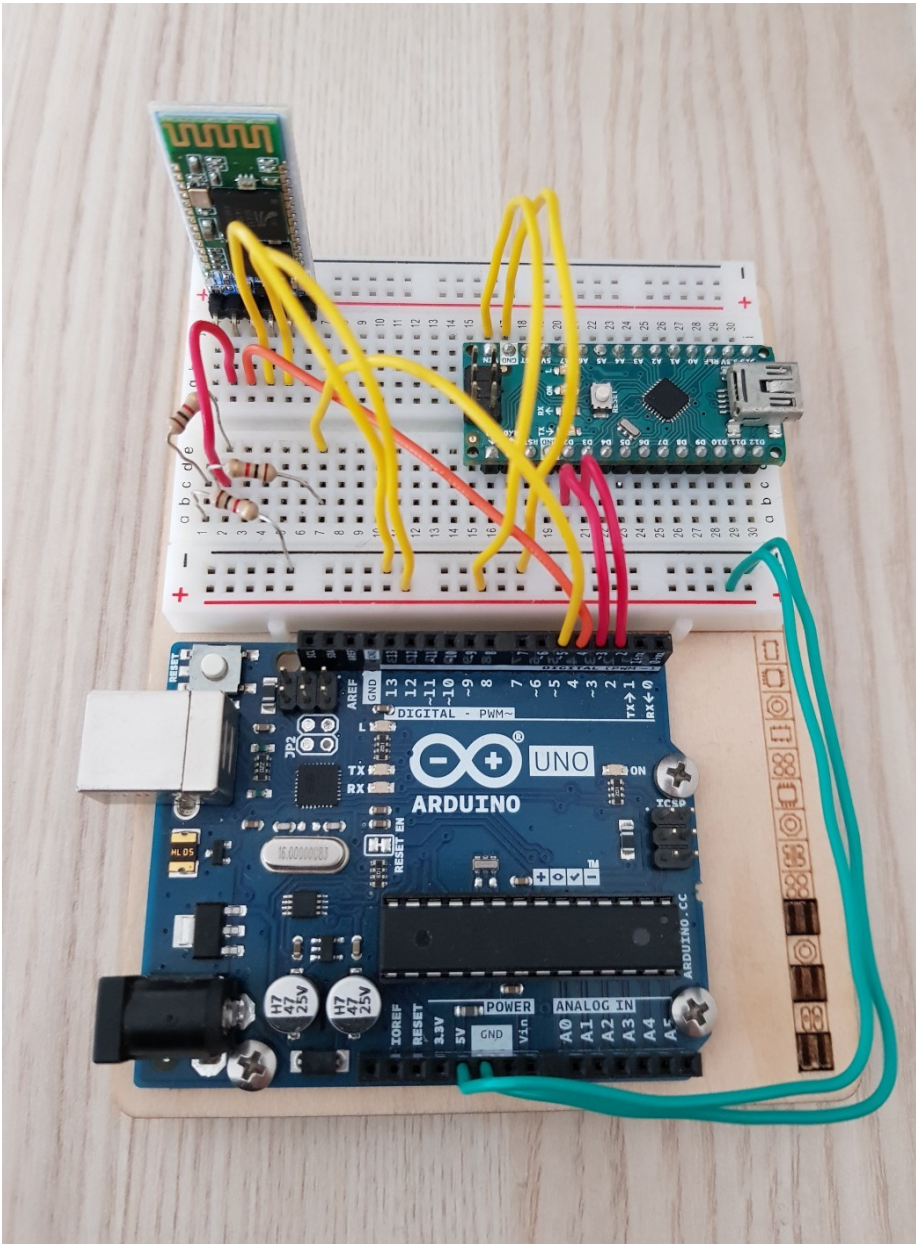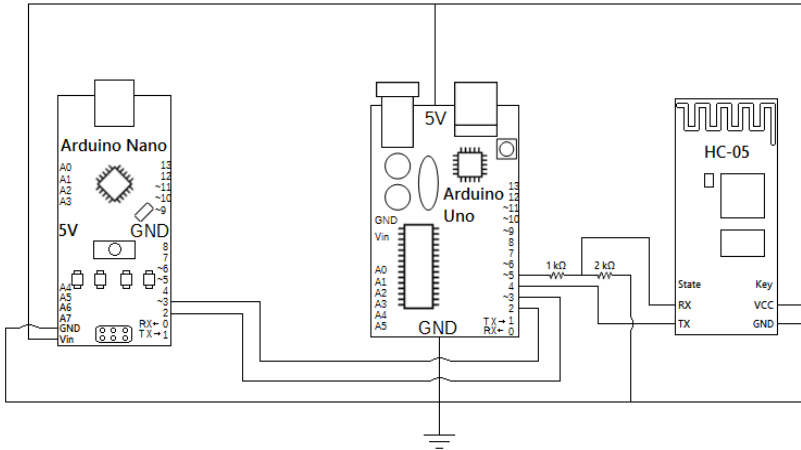# 842 Generation 2

Assistant and artificial intelligence

842 is another physical computing project from my advanced research. 842 is an assistant and a makeshift artificial intelligence built on the Arduino framework.

Originally, I programmed 842 Generation 1 which was only implemented as an executable Java program on the PC. But since then I bridged the Java code over to C++ and implemented 842 Generation 2 on the Arduino framework as an embedded system so that it consists of both software and hardware components. This has brought many advantages, such as capabilities to influence not only the digital world but the analog world, too.

This is the circuit diagram of 842:

Both the Arduino Uno and Arduino Nano are microcontrollers, and the HC-05 is a Bluetooth module. The HC-05 module is connected to a simple Android app that I programmed so that I am able to send and receive data wirelessly per Bluetooth. Alternatively, communication using the USB port is also possible.
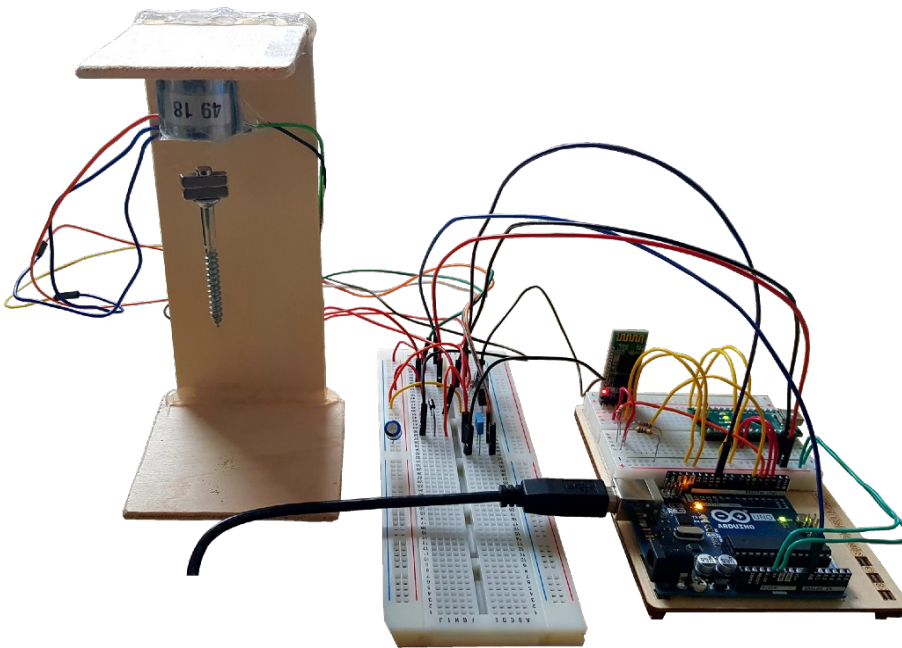
I had to use two microcontrollers because the software is simply too big to fit on just one. So I had to split the code into two pieces and run them on different microcontrollers that are synchronized to exchange data.

This is the software that I wrote:

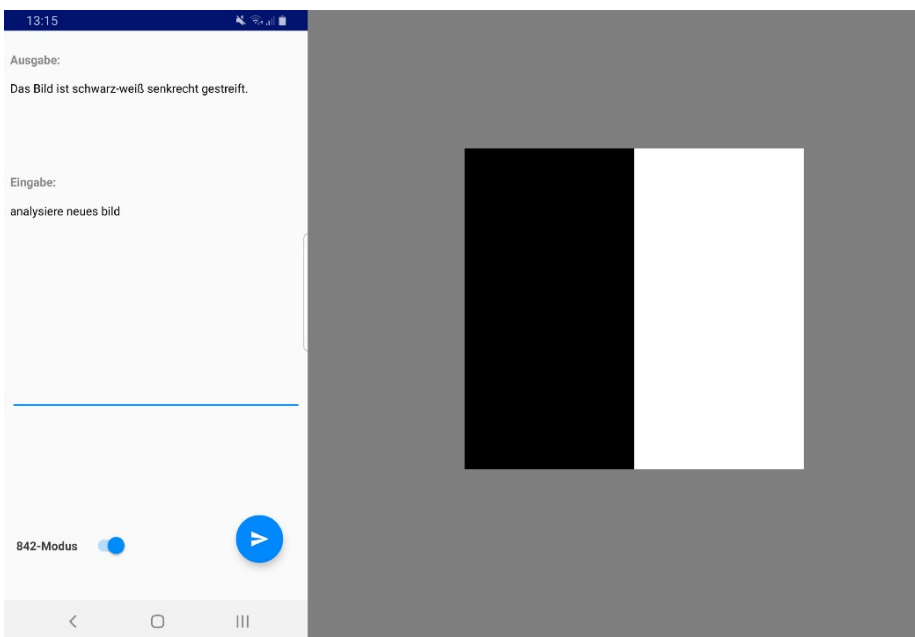https://github.com/SebastianSupreme/842-Generation-2

Since I am a German, some parts of the source code are written in German (for example the names of several variables). But you can easily use a translator for that.

Assistance functionalities of 842 Gen 2 in the digital world include things like saving notes, making calculations, generating random numbers, sending messages, etc. And for the analog world, those assistance functionalities include things like applying a voltage to certain I/O pins, measuring voltage, and the ability to operate a wide range of sensors and actors, even the levitation device as demonstrated in this image:

As for the AI part, 842 is able to categorize a black-and-white image based on the pattern of its pixels. Here is an example:

Again, the text is written in German, so just plug it into a translator.

Basically, 842 recognizes the color pattern and describes the image correctly.

But as I said before, there is no real neural network but only a makeshift neural network behind this.

In summary, 842 Generation 2 is by far the most complex project I have worked on thus far. I highly recommend that you check out the software so that you see just how much coding it took to get this done. Also, I would like you to read my other articles which cover more of my research.