FIRST PART

For my PWS in 6 VWO my group and I made a car controllable by an app via Bluetooth.

Bluetooth
→State
←RxD
→TxD
+Vcc
←EN
GND

Motorshield

AS
GND
IN4
IN3
IN2
IN1
ENA

0→RX
1←Tx
A5
A4
A3
A2
A1
A0
Vin
GND
5v
3.3v
RESET
IOREF

GND   Arduino
ARF

Battery

Motor 1   Motor 2   Motor 3

Picam
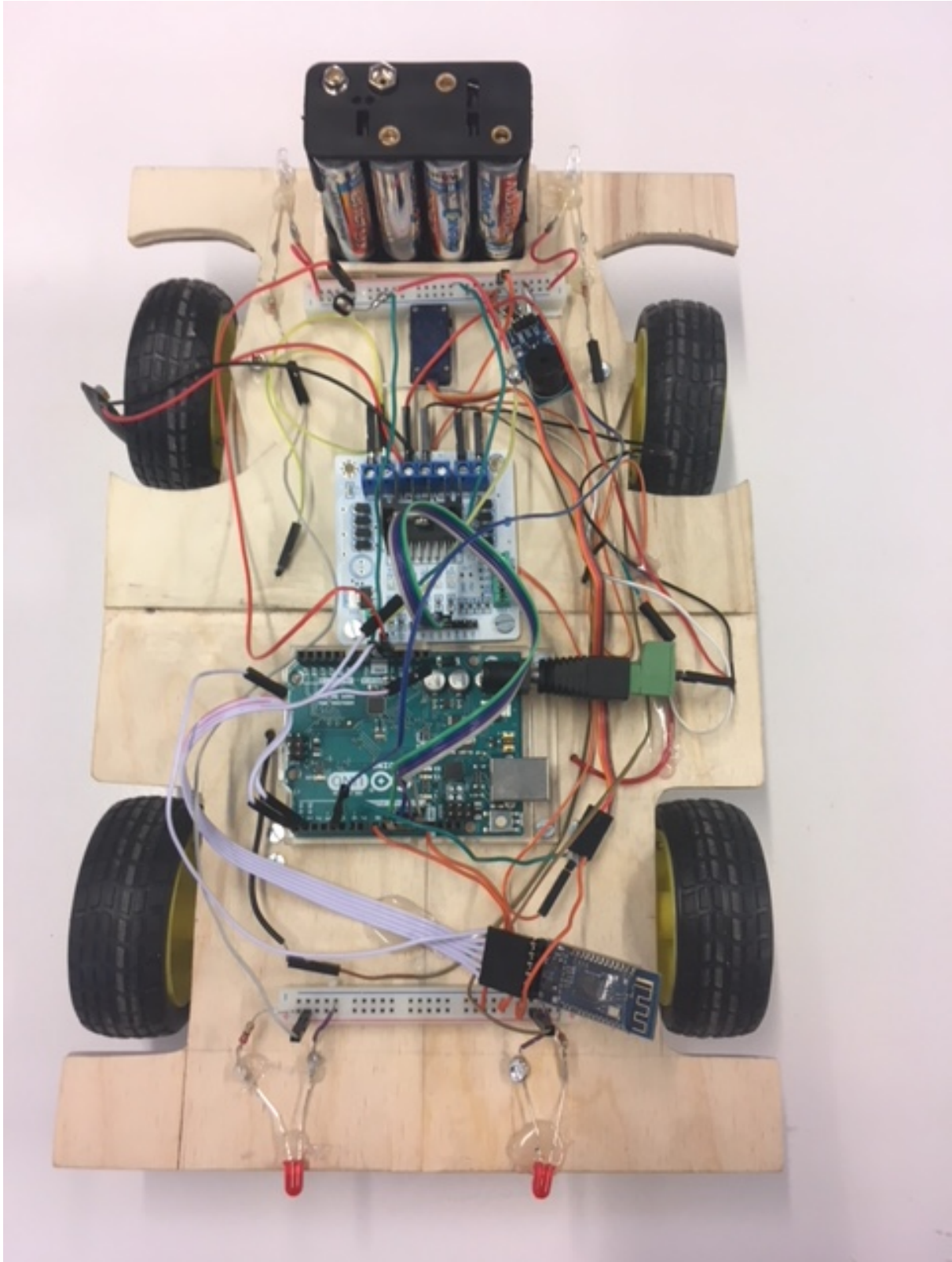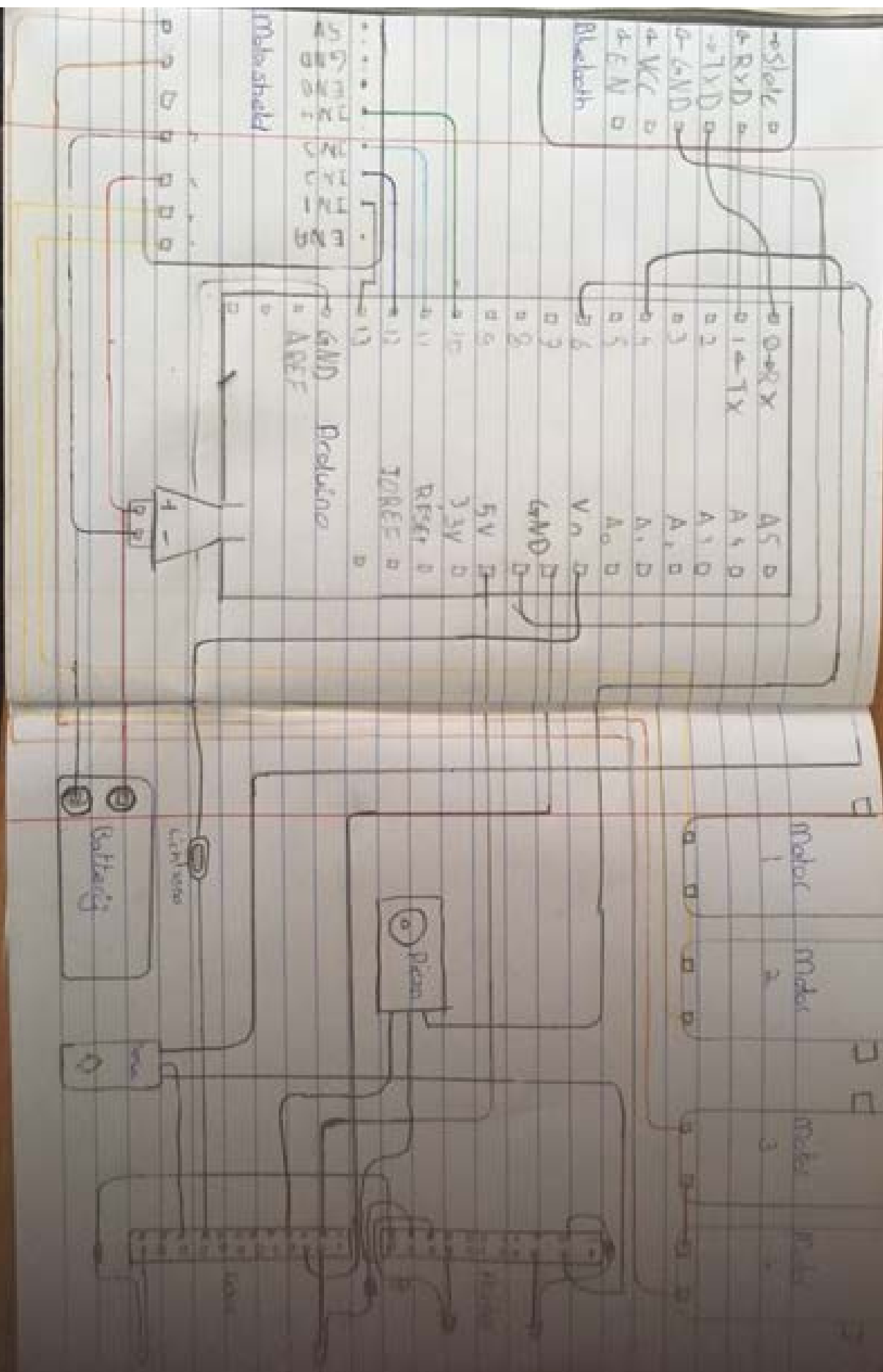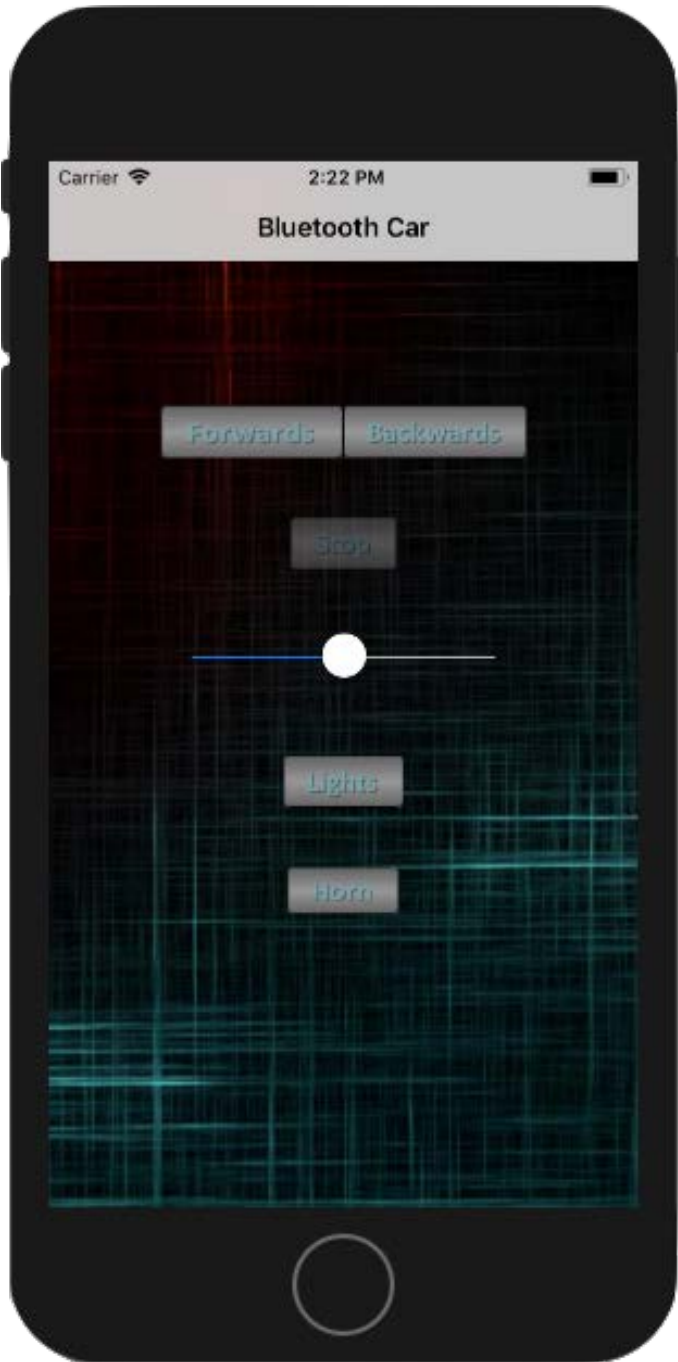
Before that, I had quite a lot of practice with programming because of some other assignments I had done, for example:

- Make a reaction time game. After a random amount of time, make a noise or blink a light and let four players compete to see who presses their button the fastest and then make their time appear on an LCD-screen and play their personal sound.
- Create a program that compares two different strings of DNA and output the differences. For example show where a base-pair is inserted or deleted, where there is an inversion or where a pair has been changed randomly and use these factors to determine how much they are alike.
- Program a piano with just buttons, resistors and a piezo (a sound-producing element).

I've also made quite some programs on my calculator, including a program to simplify square roots, a casino-like game, and a program to calculate all the different entities needed in statistics, given a submitted input.

Other than programming, I also have other assets that may help me during my study.

I'm currently working as a mechanic at Boels Rental Waalwijk. This means I often have to try to fix broken machines and take them apart to do some maintenance. I've been working at Boels for almost 3 years now, so I've gotten to know a lot of new machines and techniques to make them work.

Another skill that might help me comes from my love of sports.

Until two years ago I practiced freerunning once a week. After a while, I started helping coming up with new creative ways to arrange the different obstacles so we'd have a different course to practice every week. I thought it was a lot of fun because it got harder every week to come up with something new, but it was always very rewarding to know that we made another distinct course.

Currently, I'm practicing survival. They organise different activities throughout the year. I tend to help and volunteer there as much as I can. I usually accompany a group of children and help them with the different activities and serve as their leader.

I also used to do swimming a until a few years ago and they go camping once a year. Once you're old enough, you can help the staff organise different activities. I usually help building the obstacle course because I think an obstacle course is fun to build and fun to see being played with.

SECOND PART

The first picture is a Roomba and the second picture is an automatic lawn mower. I think both of these are working on the same principle. So I added them both. What I love about these robots is that the range of applications is profoundly large.

One of the biggest challenges is probably the space that needs to be cleaned/mowed. It needs to be programmed so it knows where to go and where not to. For example, the robot mustn't drown in the pond.

Furthermore, it is also fun to think about how to make it an ever smarter device. You could for instance incorporate a function that activates the Roomba after dinner and lunch, which aren't on strict times. To do so, it must know by itself when a dinner is done and when he is allowed to clean. Or you could implement a function to clean a different room every day, so it doesn't need a big battery, thus making it lighter and cheaper.
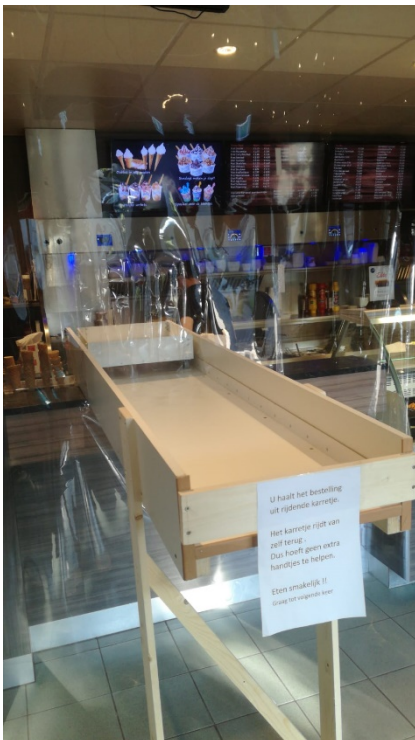
The second thing that reminded me of Creative Technology was this piece of work by a fries store in my town. It was installed due to the Corona virus so that the people and the owner didn't have to touch each other anymore and could keep their distance. It is a track with a little cart on it that the owner will push down with the fries on it. Once the customer collected the fries and snacks, the owner can pull on a string attached to the cart to retrieve it. I found this impressive so my talked about it on my way back. I also thought of ways to improve the system even more. For example, you could attack a weight on the string that's big enough so that the cart will go back up automatically, yet will ride down when it is loaded with fries and snacks. It is a quite simple mechanism, but its easy to use, cheap, safe, and does exactly what it's supposed to do.