THE PROF. ISRAEL CEDERBAUM
HIGH SPEED DIGITAL SYSTEMS LABORATORY
HS DSL
המעבדה למערכות ספרתיות מהירות
ע"ש פרופ' ישראל צדרבאום

Department of Electrical Engineering
Electronics
Computers
Communications

Remote Dog Chip Reader

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Motivation and Recap

Problems

- **Most interfaces that deal with pet chip readers are hard to operate.**
- **They are relatively expensive.**
- **In order to get sufficient information about the pet, the user must search for this info. manually.**

Motivation and Recap

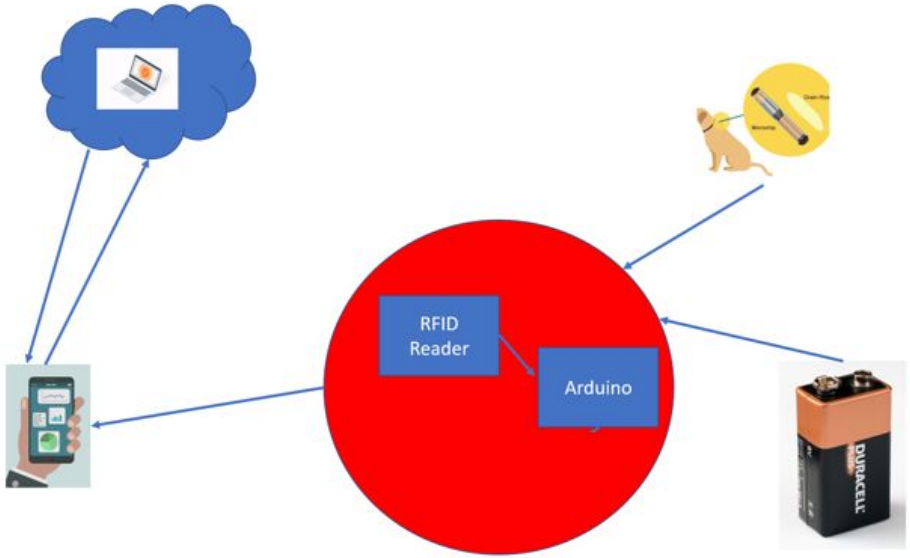
Our Solution

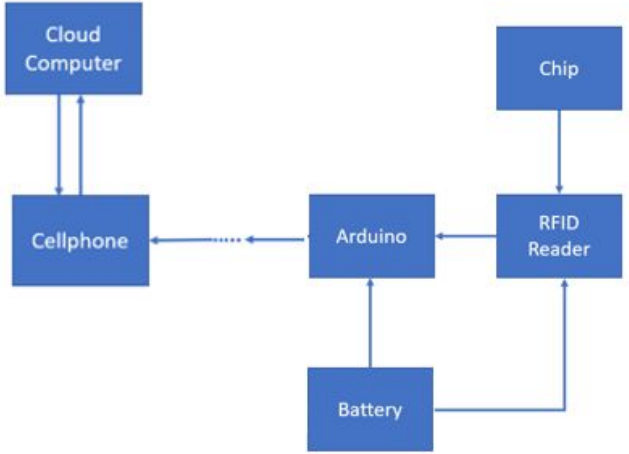
- **Design an interface that is not complicated**
- **Use a small and cheap chip reader which is compact and battery powered.**
- **Display the info. to the user using an App or a Website.**

PDR Summary

- Use the RDM6300 125kHz EM4100 RFID to scan the microchip.
- Transmit the scanned chip number to the ESP32 .
- Use the Bluetooth protocol on the ESP32 and send the scanned number to our cell phone.
- Receive the sent data using our application and send a request to a cloud computer demanding the microchip’s info.
- Receive the desired data from the cloud computer.

Block Diagram

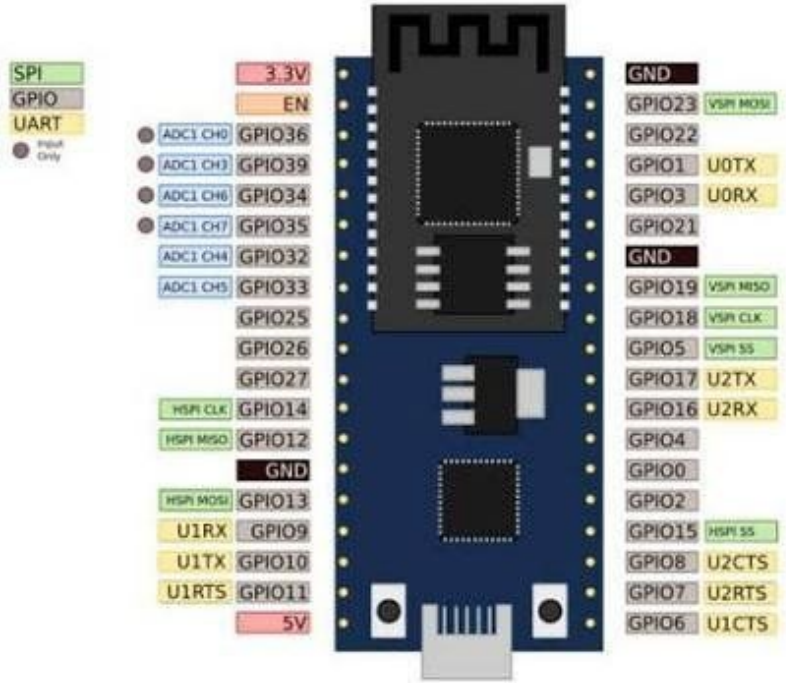




What has been done so far?

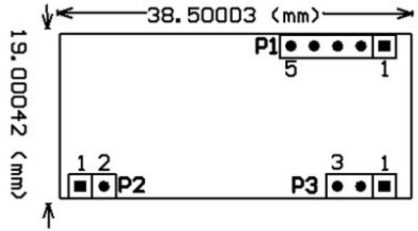
- Choose the protocols to work with.
- Start working on the Android App.
- Figuring out how to connect the devices.

Some Schematics



Some Schematics

Pinout:



2. Pin definition（TTL interface RS232 data format)：

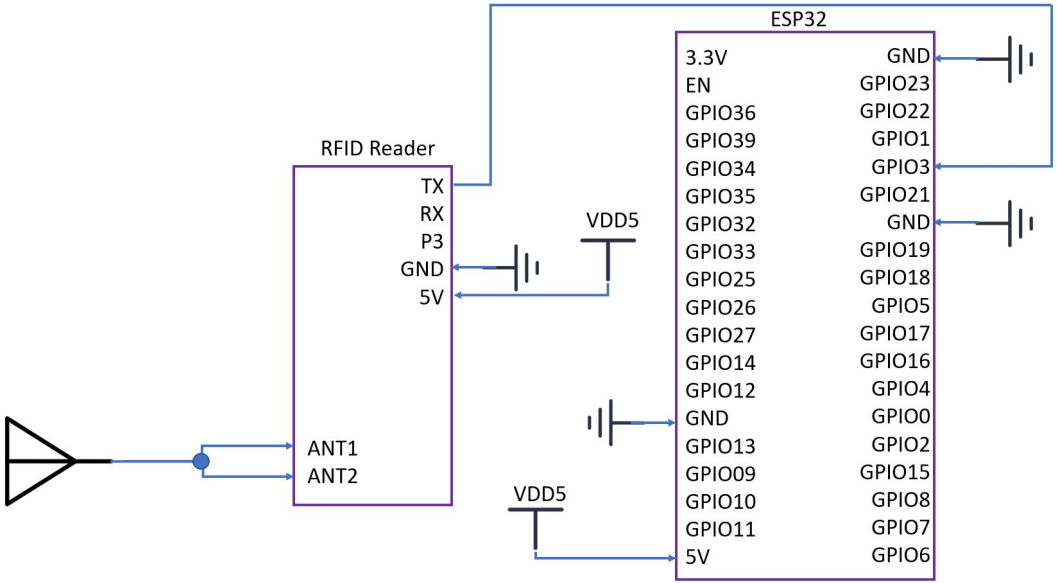
P1：

PIN1	TX
PIN2	RX
PIN3	
PIN4	GND
PIN5	+5V(DC)

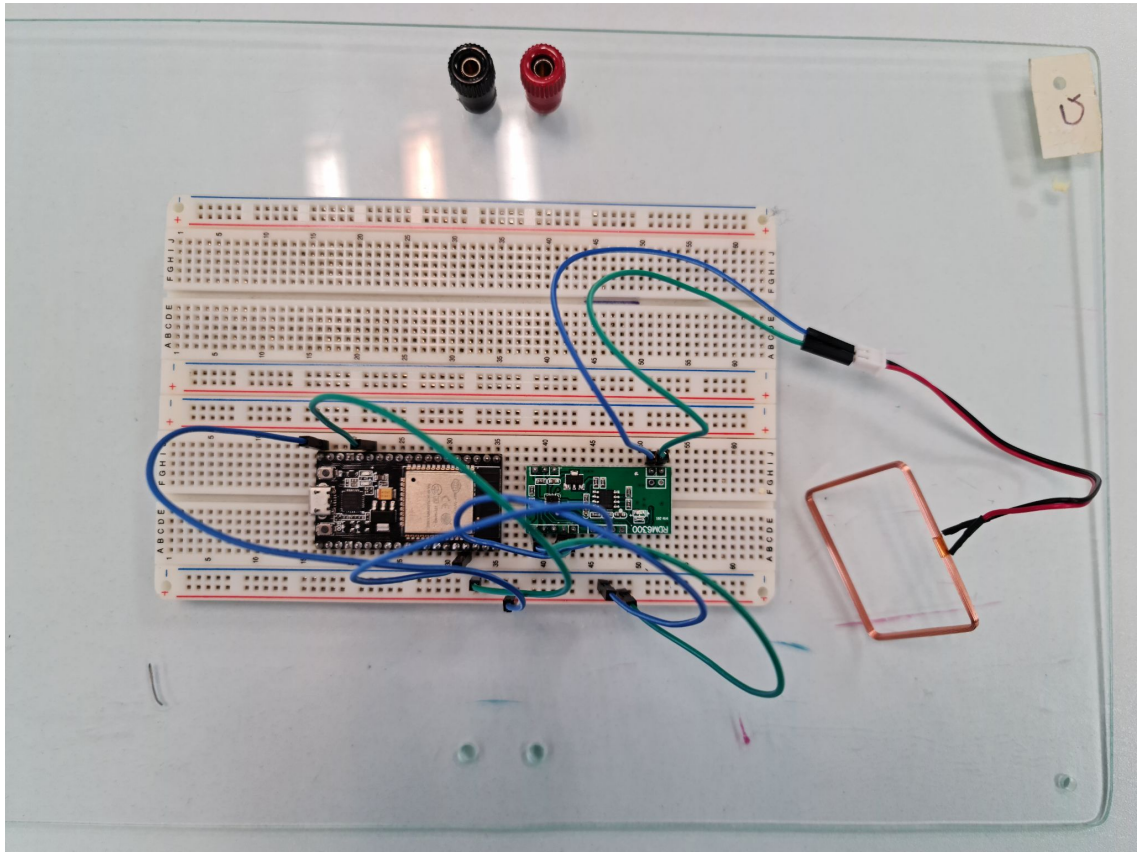
P2:

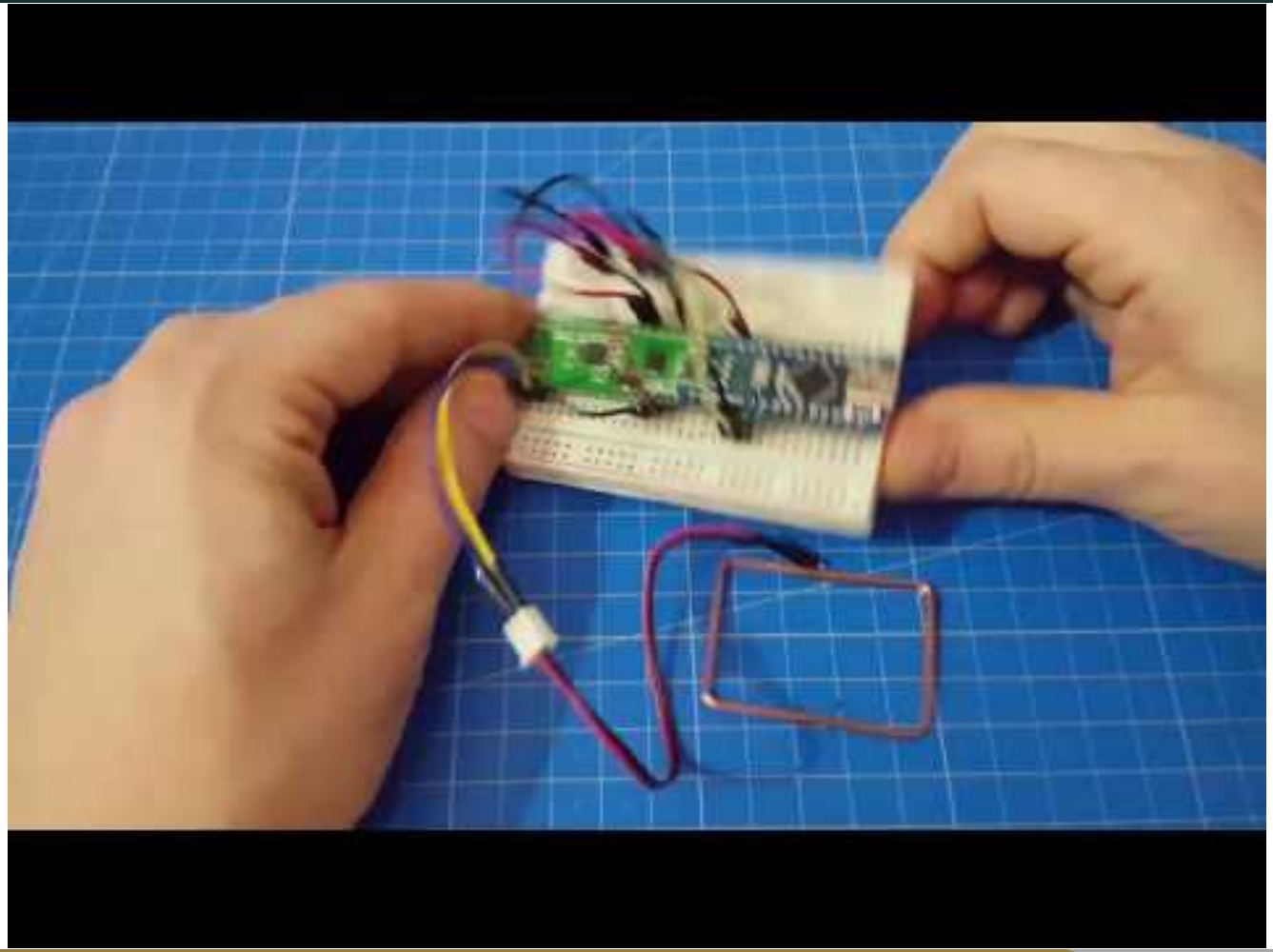
PIN1	ANT1
PIN2	ANT2

Some Schematics



How we would connect it?





A bit about the app

Steps to get the data considering a certain pet:

- **Turn on the bluetooth, the device would pair to the arduino card.**
- **Enter the app.**
- **Push on the button “Receive Data”, the data will be received from the card via the bluetooth connection.**
- **After an exchange of requests between the app’s API and the cloud computer the data will be displayed in front of the user.**

A bit about the app

A code that would read from the bluetooth stream from the Arduino:

Setting up the connection:

```
BluetoothDevice btDevice = bta.getRemoteDevice(macAddress); //Identifying the device
BluetoothSocket btSocket = InsecureBluetooth.createRfcommSocketToServiceRecord( btDevice,
                                        UUID.fromString("00001101-0000-1000-8000-00805F9B34FB"), false);//Creating a bluetoothsocket
 btSocket.connect();
InputStream input = btSocket.getInputStream();
DataInputStream dinput = new DataInputStream(input);
```

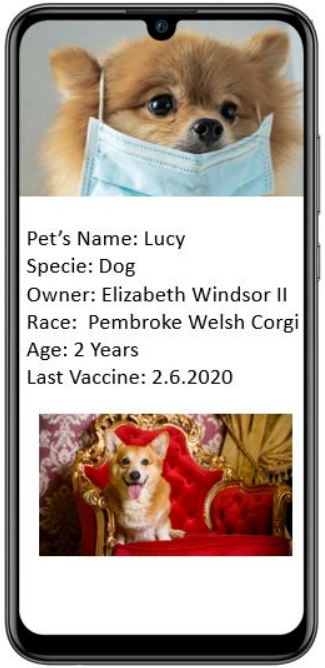
Receiving the data:

```
dinput.readFully(byteArray, 0, byteArray.length);//Reads all of received bytes
```

Application’s interface illustration

Step 1

Step 2



Schedule

Nr.	Task	Start	Finish	Duration
1	1)Characterize the project. 2)Learn about Arduino. 3)Learn about the EM4100 RFID Reader	24.3.21	14.4.21	3 Weeks
2	1)Choose the arch. of the system. 2)Choose the hardware components.	14.4.21	4.5.21	3 Weeks
3	PDR Presentation	4.5.21	4.5.21	------
4	Design a schematic of the project.	4.5.21	11.5.21	1 Week
5	Start designing the board and integrating the hardware components+buy the components.	11.5.21	25.5.21	2 Weeks
6	1)Create a design of the components demands. 2)Start working on the cellphone app.	25.5.21	9.6.21	2 Weeks
7	Midterm Presentation	-----	-----	-----

Schedule

Nr.	Task	Start	Finish	Duration
1	1)Connect all the hardware modules 2)Perform Tests	13.6.21	27.6.21	2 Weeks
2	Exam Break	5.7.21	1.8.21	4 Weeks
3	Continue working on the cellphone app	1.8.21	14.8.21	2 Weeks
4	Work on the communication between the cellphone and the Arduino card using bluetooth.	14.8.32	21.8.21	1 Week
5	1) Work on our “Data Server” (Cloud Computer) 2) Work on the communication between the app and the cloud computer.	21.8.21	14.9.21	3 Weeks
6	Finalising and fine tuning the design.	14.9.21	28.9.21	2 Weeks

End of the PDR-Presentations

Hope you liked it