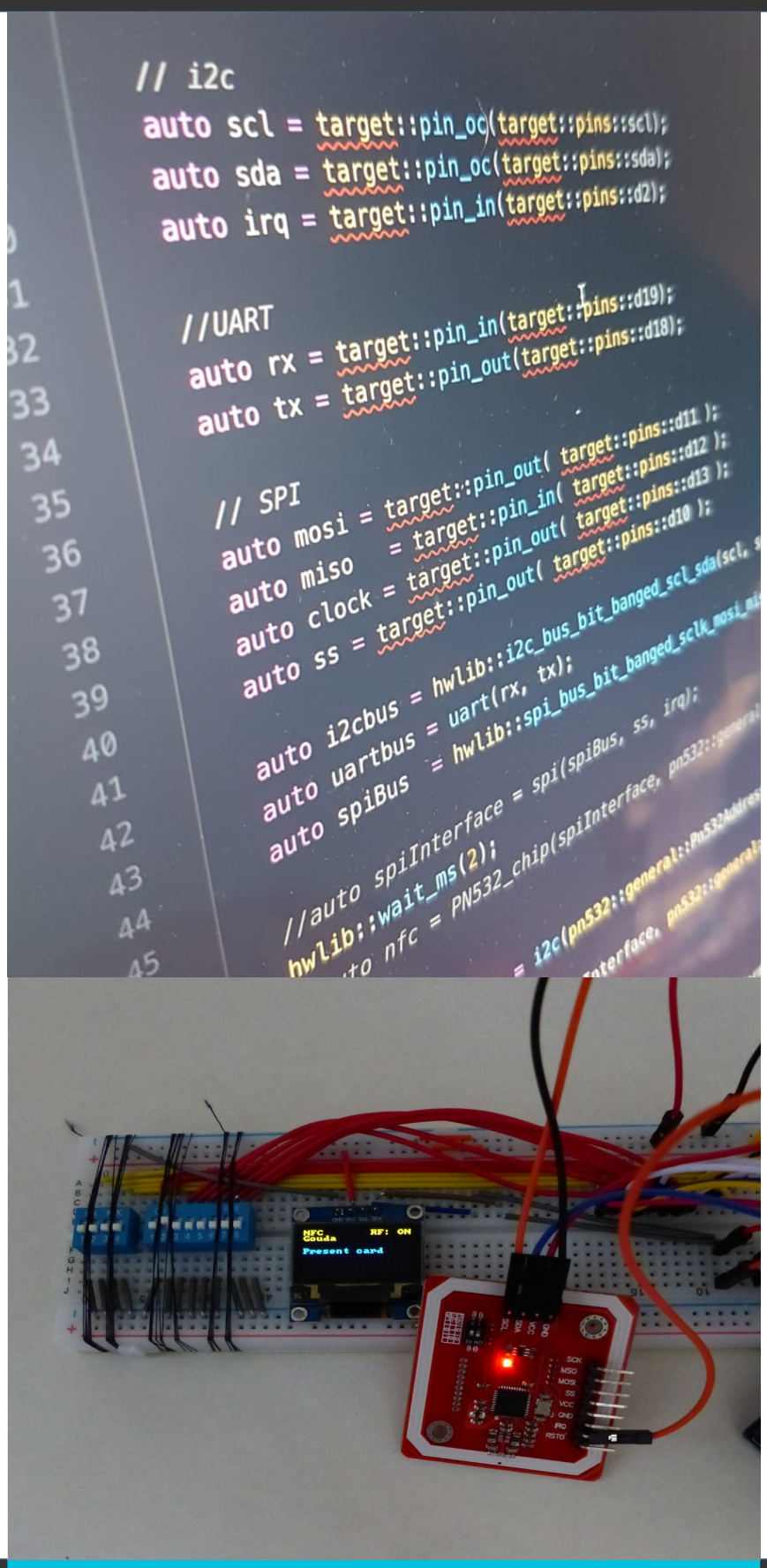


Pn532 library

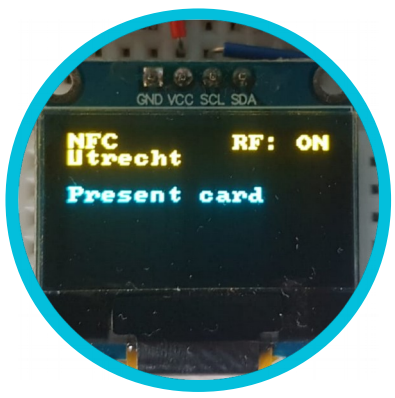
A library for Mifare Classic 1K card reading

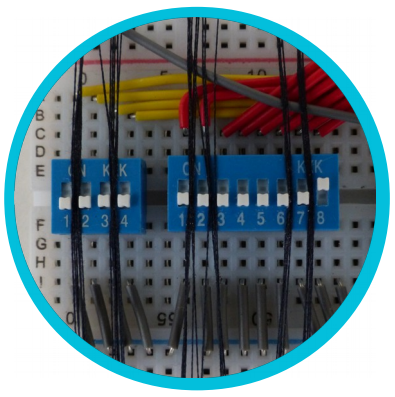
This library both provides and implements an abstract NFC super class. The implementation is done for the pn532 specifically. With this library, the pn532 is able to fully read a Mifare classic 1k card and is capable of much more.

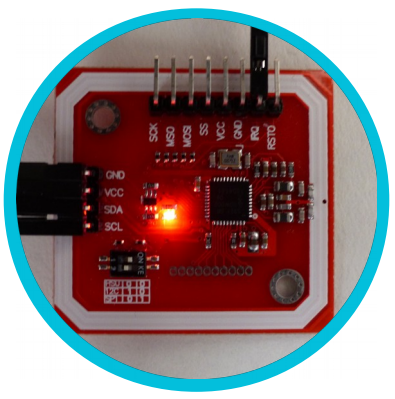
Apart from the abstract NFC interface, this library also provides an abstract interface that can be used to implement different kinds of communication methods. In this particular library the implemented communciation methods are: i2c, SPI and HSU (High Speed UART). The i2c and SPI communication protocols are fully implemented and use a bit banged version provided in hwlib (credits: Wouter Van Ooien). The HSU implementation however is hardware based but is not implemented completely (yet) .

Another extra feature of this library is that it comes equipped with a decorator for the NFC class so it can work in combination with an oled display.

The library also has various examples of how to use it’s functions to read a Mifare card along with elaborated Doxygen lines.







Application description

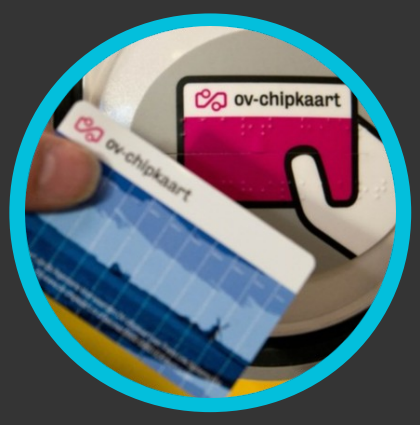
Alongside the various examples included in the library, it also comes with an application. The application is meant to imitate a public transportation system like the one in the Netherlands.

The application keeps a record of checked in cards and at what station / mode the reader is currently in. It will calculate the traveled distance based on check-in and check-out station. The Haversine formula is used to calculate the crow-fly distance.

Features of the application that are fully customizable:

- The protocol to communicate with the chip
- Sector of Mifare Value block(s)
- Authentication keys
- Price per kilometer
- Maximum card balance
- Minimum card balance check in value
- …

Library features



– Abstract NFC super class
– pn532 library
– Full i2c and SPI support
– Partial hardware HSU support
– Decorator class for an oled display
– Wide range of example files
– Public transportation application
– A elaborated test plan
– Fully documented Doxygen files

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