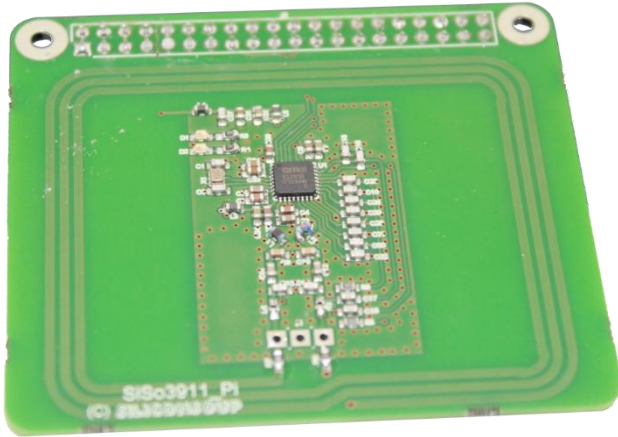


OVERVIEW



The Long-Range RFID reader for the Raspberry Pi is a complete read and write solution for all of the 5 types of NFC tags. The Long-Range Reader is supplied with iCode label tags and demonstration code to read and write the memory of iCode tags. iCode is a new subset of the NFC group of tags. It supports multiple tags in the same field at the same time.

The reader is based on the ST25R3911 and uses the ST Microelectronics libraries which provide examples to read and write all of the 5 types of NFC tags. The user could use this RFID reader to

read and write all NFC tags/labels.

The iCode standard supports a number of security options including privacy modes, write locks and label destroy.

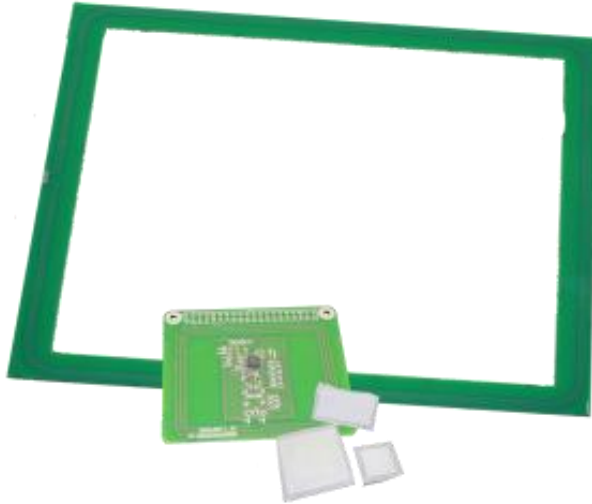
iCode tags can be accessed at from a longer range than many of the other NFC types of tags. With the PCB antenna on the range is typically 8-12cm for a 5x5cm label tag.

The Reader comes with an option for a large picture frame antenna. This increases the range to about 25-30cm for the same 5x5cm label tag.

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LARGE ANTENNA OPTION



It is possible to order the Long-Range RFID Reader with a picture frame antenna.

The picture frame antenna is 22x26cm. It improves the read/write range to a 5x5cm label tag by a factor of between 2 and 3.

The large antenna is matched to a reader. Readers matched to the large antenna cannot be used with the on-board PCN antenna without re-matching to that antenna. Similarly, any

reader matched for the on-board PCN antenna cannot be used with the large picture frame antenna.

SUPPORTED TAG TYPES

The Long-Range RFID Reader supports all 5 of the NFC tag types. These are compliant to ISO15693/ISO18000-3 infrastructures.

The Long-Range Reader was developed using the iCode type of NFC tag. The ST Microelectronics libraries provide example software to allow all 5 types of NFC tag to be read and written. The demonstration software provided on GitHub is focused on the iCode sub-set of NFC tags.

RASPBERRY PI DRIVER SOFTWARE

The iCode NFC Reader uses the ST25R3911BNFC / HF RFID Reader to communicate with the iCode tags. The software is based on the libraries provided by ST Microelectronics. The software has been modified to add functionality to read and write blocks of memory.

The ST Microelectronics library allows the user to work with all 5 NFC tag types. The commands below only demonstrate the iCode operation.

Using the supplied software the following functions are available, each command being accessed by the letter.

a – Scan for Available Cards

s – Scan for specific card type

m – Example Read card memory (ST Example)

v – Read Block Zero from first NFC-V tag found

w – Write to Block Zero on the first NFC-V tag

e – Exit Program

Software for the CognIoT iCode Reader is available on GitHub. The purpose of the software is to demonstrate the capabilities and provide some working software as a platform for starting project development. Although the software is written with the iCode NFC-V tags in mind, the libraries provided by ST Microelectronics will work with all common NFC tag types.

REVISION HISTORY

Version	Date	Comment
V1.0	Jan 2019	First version.
V1.1	Jul 2021	Clarified NFC tag type support.