

Implementing near field connectivity

NFC is a short-range high frequency wireless communication technology that enables the exchange of data between devices over about a 10 cm distance. NFC is an upgrade of the existing proximity card standard (RFID) that combines the interface of a smartcard and a reader into a single device. An NFC tag can hold 64 to 752 bytes of data.

The NFC tags can be used in real time to read and store the data from meters and sensors. There is a type of NFC tag, called Dynamic NFC (DNFC). The DNFC has an I2C interfacing option. With it, it can be connected to either Arduino or Raspberry Pi. Dynamic NFC / RFID tags feature an EEPROM memory bank that can be accessed either through a low-power I²C interface or an NFC / RFID interface operating at about 13.56 MHz. The basic working methodology is shown below:

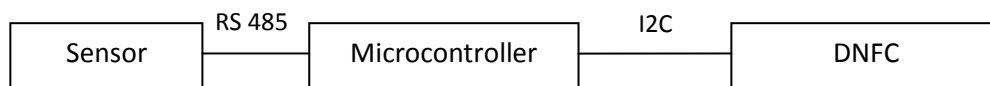
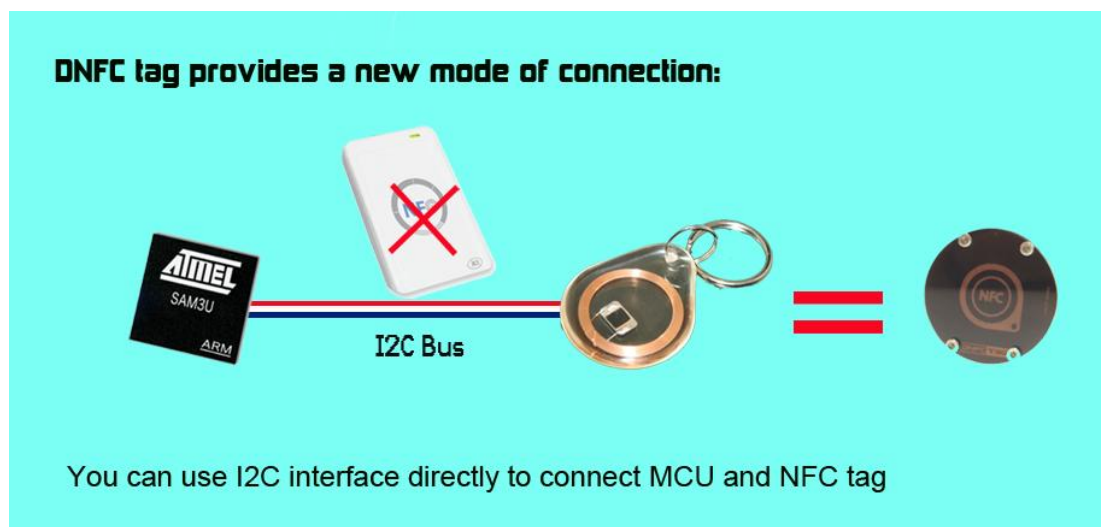


Fig. 1: Data Acquisition using NFC tags

Normally for a microcontroller to read/write files into an NFC tag, we need an NFC reader. However, availability of Dynamic NFC with I2C interface has bypassed the NFC reader.



MCU: Micro Controller Unit

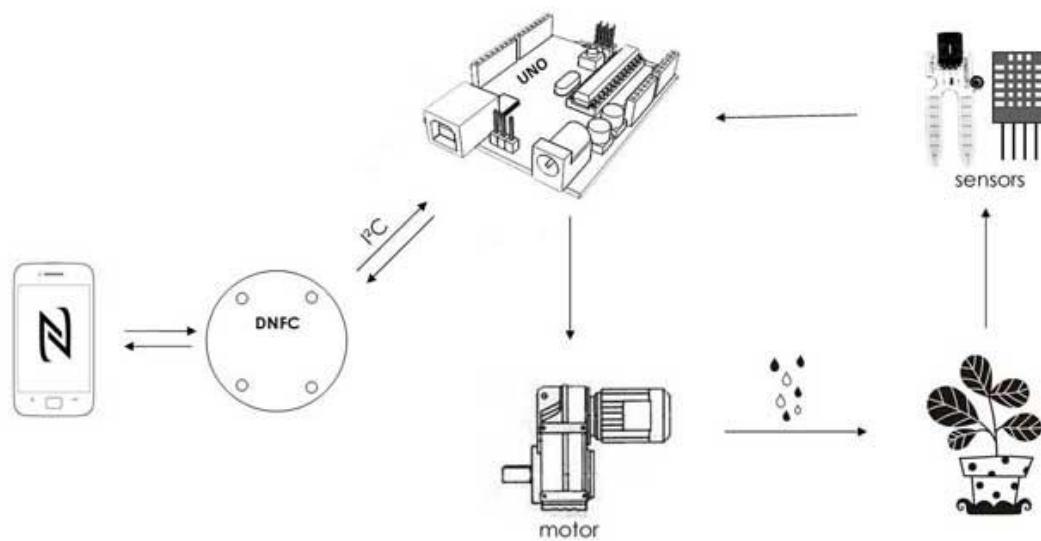


Fig. 2: Typical working methodology

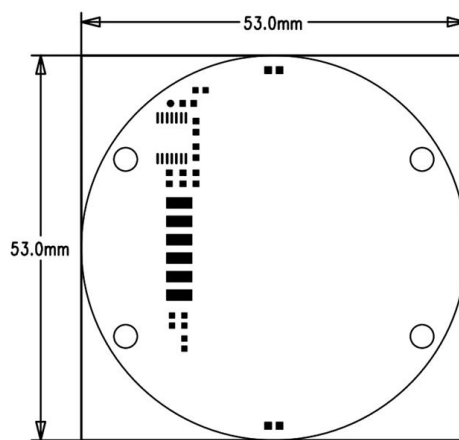


Fig. 3: Typical NFC tag size

Costing:

http://www.st.com/web/en/catalog/mmc/FM76/CL1766/SC1412/?icmp=ss1412_pron_dyn_amicnfctag-pr1_jun2014&sc=dynamicnfctag-pr

DNFC tag, under mass production, is below 2 USD:

<https://www.indiegogo.com/projects/dnfc-tag-nfc-that-interacts-with-microcontroller#/story>