2. Description of Invention:

2.1 Adding close proximity communication to Active tag

The current active tag device can only exchange data between the device and host via long range mesh-network communication. This has a limitation on close proximity direct reading/writing information into the device without using the wireless mesh RF network . This can be done using a non-similar system devices such as NFC(near field communication) reader.

By using the external NFC reader the following can be read or written into NFC Active Tag.

1. Store information – A NFC reader could be placed near to the NFC Active Tag and transmit necessary information into the NFC Active Tag.

2. Configuration – A NFC reader could be placed near to the NFC Active Tag to configure the device such as:-

a. Deactivate the NFC Active Tag

b. Activate the NFC Active Tag into information downloading mode

c. Wake NFC Active Tag from deep sleep mode

d. Configure the NFC Active Tag into different operating mode such as turn on/off button feature, different sleep time, configure the I2C port and other chip related functionalities

3. Identification – NFC Active Tag could be place next to a NFC reader to verify it/user identification without worry about fake or unauthorized identity

4. Extract information - NFC reader is placed next to NFC Active Tag to download the intended information from the system onto the reader to be processed

2.2 Using long range communication via mesh network

The information exchanged and updated with the NFC reader, can be uploaded to the back-end server using the wireless mesh network that the Active Tag is coupled to. This provides a means for the NFC transaction to be reported back with relevant information, in areas where no other long range back-haul communication systems are available, for eg. inside large complexes, underground facilities, outfield sites without mobile coverage, etc.

Title: NFC Active Tag

Description of Invention:

1. Adding close proximity communication to Active tag

The current active tag device can only exchange data between the device and host via long range radio frequency wireless network communication. This has a limitation on close proximity direct reading/writing information into the device without using the wireless network. This can be overcome using a non-similar close proximity communication device such as an NFC (near field communication) device. The active tag will also be enable with NFC communication capability, hence referred to as an **NFC Active Tag** as shown in Figure (1) System Drawing.

By using the external NFC device the following can be read or written into the **NFC Active Tag**.

1. Store information – A NFC device could be placed near to the **NFC Active Tag** and transmit necessary information into the **NFC Active Tag.**
2. Configuration – A NFC device could be placed near to the **NFC Active Tag** to configure the device such as:-
    a. Deactivate the **NFC Active Tag**
    b. Activate the **NFC Active Tag** into information downloading mode
    c. Wake **NFC Active Tag** from deep sleep mode
    d. Configure the NFC Active Tag into different operating mode such as turn on/off button feature, different sleep time, configure the I2C port and other chip related functionalities
3. Identification – **NFC Active Tag** could be place next to a NFC device to verify it/user identification without worry about fake or unauthorized identity
4. Extract information - NFC device is placed next to **NFC Active Tag** to download the intended information from the system onto the reader to be processed

2 Using long range communication via wireless network

The information exchanged and updated with the NFC device, can be uploaded to the back-end server using the wireless network that the NFC Active Tag is coupled to, as shown in Figure (1). This provides a means for the information now stored in the NFC Active Tag to be reported back, in areas where no other long range back-haul communication systems are available, for eg. inside large complexes, underground facilities, outfield sites without mobile coverage, etc.