WHAT IS CLAIMED IS:

1. A RFID card learning apparatus, adaptive to simulating a card reader for reading at a serial number and data of at least one of a plurality of RFID cards, and simulating the at least one of the plurality of RFID cards to transmit the corresponding serial number and data of the simulated one of the plurality of RFID cards, the RFID card learning apparatus comprising:

a microcontroller, comprising at least one I/O port and one ADC input port; and

a coil, having one end connected to the I/O port of the microcontroller and another end connected to the ADC input port, the coil sensing an electromagnetic signal and forming an electromagnetic load or antenna,

when the RFID card learning apparatus operates in a learning mode for simulating the card reader to read one of the plurality of RFID cards,

the microcontroller outputs a voltage signal with a frequency through the I/O port to the coil for charging the one of the plurality of RFID cards for simulation,

the microcontroller receiving a sensing electromagnetic signal in response to the voltage signal from the coil through the ADC input port, detecting a current variation or a voltage variation of the sensed electromagnetic signal to determine a load variation, using the load variation to obtain a digital signal as the ID number and data corresponding to the one of the plurality of RFID cards card, and storing the ID number and data corresponding to the one of the plurality of RFID cards as one of the plurality of different ID numbers and data,

when the RFID card learning apparatus operates in a normal mode for

simulating the at least one of the plurality of RFID cards,

the microcontroller being triggered ~~to simulate~~ by a level variation of a carrier signal of the RFID card reader, and the microcontroller determines whether the RFID card reader is a high frequency RFID card reader or a low frequency RFID card reader according to a carrier frequency of the carrier signal, such that the microcontroller simulates one of the plurality of RFID cards by sequentially transmitting the plurality of ID numbers and data corresponding to the plurality of RFID cards~~.~~ according to a transmission format and timing.

2. The RFID card learning apparatus as claimed in claim 1, wherein each of the plurality of RFID ~~card learning apparatus further reads~~ cards is a RFID key fob, a RFID tag or ~~RFID accessible device card, simulates the RFID key fob, the RFID tag or the RFID accessible device card, and transmits the serial number and the data from the RFID key fob, the RFID tag or the RFID accessible device card.~~ a NFC tag.

3. The RFID card learning apparatus as claimed in claim 1, wherein ~~the RFID card learning apparatus further reads a proximity card, a vicinity card or NFC card, simulates the proximity card, the vicinity card or the NFC card, and transmits the serial number and the data from the proximity card, the vicinity card or the NFC card, wherein the proximity card, the vicinity card or the NFC card is used under a communication carrier frequency above 150kHz and below 40MHz.~~ each of the plurality of RFID cards is a low frequency RFID card with a communication carrier frequency below 150kHz.

4. The RFID card learning apparatus as claimed in claim 1, wherein ~~the RFID~~

~~card learning apparatus is made as a wearable product or a watch.~~ each of the plurality of RFID cards is a high frequency RFID card with a communication carrier frequency above 150kHz and below 40MHz.

5. The RFID card learning apparatus as claimed in claim 1, wherein

the microcontroller further comprising another I/O port, a PWM Output Port, the microcontroller outputting a pulse-width-modulation (PWM) signal through the PWM Output Port, the PWM Output Port being connected to the one end of the coil which is connected to the I/O port of the microcontroller, wherein

when the RFID card learning apparatus operates in the learning mode, the I/O port of the microcontroller is set to be floating, the another I/O port of the microcontroller is set to be a high potential, and the PWM signal is transmitted to the coil for reading the one of the plurality of RFID cards.

6. The RFID card learning apparatus as claimed in claim 1, further comprising an input stage circuit, wherein

the microcontroller further comprises a positive OP input port, a negative OP input port, an OP output port and an operation amplifier, inputs of the positive OP input port and the negative OP input port are used as two inputs of the operation amplifier, and output of the operation amplifier is coupled to the OP output port, wherein

an input terminal of the input stage circuit being connected to the another end of the coil, the ADC input port,

a first output terminal of the input stage circuit being connected to the positive OP input port of the microcontroller, and

a second output terminal of the input stage circuit being connected to the

negative OP input port of the microcontroller, wherein

the input stage circuit being capable of adjusting a frequency of the electromagnetic signals sensed by the coil by using a capacitor coupling to the coil, and the input stage circuit being capable of low-pass filtering before the electromagnetic signals sensed by the coil being transmitted to the positive OP input port of the microcontroller or to the negative OP input port of the microcontroller.

7. A wearable product, integrated with a microcontroller and a coil, wherein the microcontroller comprising a first I/O port, a second I/O port and a ADC input port; and

a coil having one end connected to the first I/O port of the microcontroller and another end connected to the second I/O port and the ADC input port, the coil forming as an electromagnetic load or antenna,

wherein the microcontroller outputs a voltage signal with a frequency through the first I/O port to the coil for charging the one of the plurality of RFID cards for simulation,

the microcontroller receives a first signal through the coil ~~without demodulation~~, wherein the first signal comprises a RFID card number and data,

the microcontroller stores the RFID card number and data by detecting a current variation or a voltage variation of the ~~undemodulated~~ first signal to determine a load variation, using the load variation to obtain the RFID card number,

when the microcontroller ~~receives a read request,~~ being triggered by a level variation of a carrier signal of the RFID card reader, the microcontroller determines whether the RFID card reader is a high frequency RFID card reader or a low frequency RFID card reader according to a carrier frequency of the carrier signal,

such that the microcontroller transmits the RFID card number through the coil according to a transmission format and timing.

8. An operating method of a wearable product, comprising:

configuring a microcontroller and a coil, wherein the microcontroller outputs a voltage signal with a frequency to the coil for charging the one of the plurality of RFID cards for simulation, receives a first signal in response to the voltage signal through the coil, the first signal comprises a RFID card number, and detects a current variation or a voltage variation of the first signal to determine a load variation, using the load variation to obtain the RFID card number, and stores the RFID card number; and

transmitting the RFID card number through the coil by the microcontroller when the microcontroller ~~receives a read request.~~ being triggered by a level variation of a carrier signal of the RFID card reader, wherein the microcontroller determines whether the RFID card reader is a high frequency RFID card reader or a low frequency RFID card reader according to a carrier frequency of the carrier signal, such that the microcontroller transmits the RFID card number according to a transmission format and timing.