Forget Me Not USB Device Reminder™
U.S. patent 7,741,974
Pigeon Technologies, LLC

Background

USB devices: almost unknown a decade ago; are now among the most widely known and used devices of the Information Age.

USB devices: including memory sticks, portable hard drive, security token, Internet keys, et cetera; are extremely powerful, but diminutive, personal computer tools and have become both ubiquitous and indispensable.

For these same reasons leaving a USB device on a computer outside one's home or office is very easy to do and also easily one of the last things one wants to happen.

Information lost may take many hours to replace or be irreplaceable, may incur enormous embarrassments, huge inconveniences, professional liabilities, and security reaches.

Indispensable also means invaluable.

Forget Me Not USB Device Reminder™

is proprietary intellectual property: US Patent 7,741,974; that ensures against loss of a USB device by leaving it on a computer.

When the computer is turned off, or the owner of the USB device walks away, the USB device or an attachment to it reminds the owner that they have left the USB device on the computer by activation of an alarm on a cap or 'base' for the USB device.

Reuniting the USB device with the base turns the alarm off.
And the alarm is not activated if the USB device is remembered.

How Does It Work?

As broadly claimed in U.S. Patent # 7,741,974 the Forget Me Not USB Device Reminder™ relies upon a simple but novel approach. A radio frequency (RF) transmitter, powered by the computer used through a USB port, sends a limited range RF signal with identification (ID) recognized by a RF receiver on the base retained by the owner of the USB device.

If the computer is turned off before the USB device is retrieved by the owner then the failure of the base to receive the RF signal with that ID activates the alarm.

Similarly, if the owner walks away from the computer with the USB device still connected to it, the alarm is activated by exceeding the range of the RF signal – about ten feet or so.

The ID ensures that RF interference of the same frequency, even from another Forget Me Not USB Device Reminder™, will not defeat alarm activation from reception cessation.

Since signal transmission is powered by the computer, and reception uses much less power than transmission, the overall cost of the technology and the size and weight of the product encompassed are minimized as demonstrated by the prototype pictured below which, built from a standard development kit, is much larger than actually required.

The largest and heaviest single item involved is the one Lithium battery required of the base associated by a unique signal ID to the USB device or attachment.

Operational Features

No Manual Switches Required

Reuniting the USB device or attachment with the cap or base turns the RF receiver, alarm, and reception circuitry OFF.

And since the transmission circuitry including transmitter is powered by the computer during use there is no need for a switch.

Applicable to Any USB Device

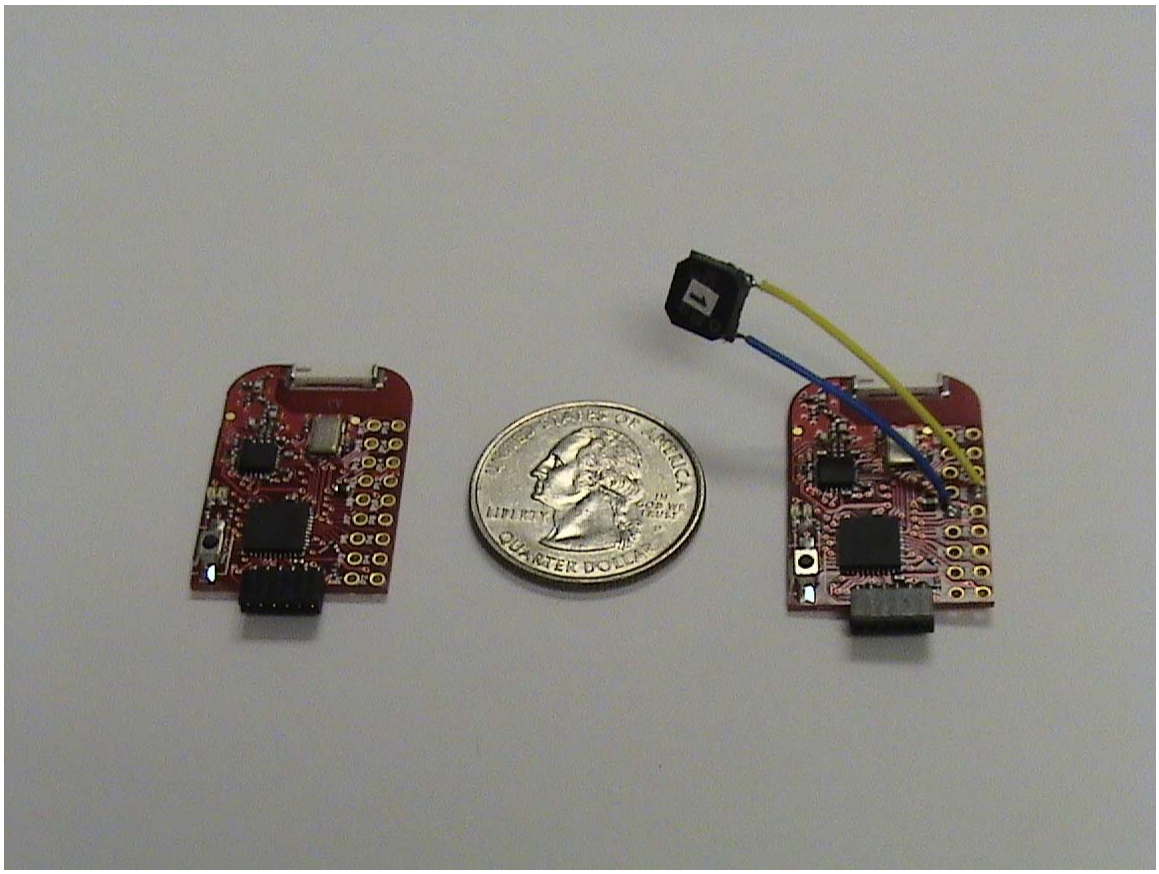
1. Directly with incorporation of the transmission circuitry into a USB device; or
2. With attachment operable with any USB device with a USB connector.

Foolproof Operation

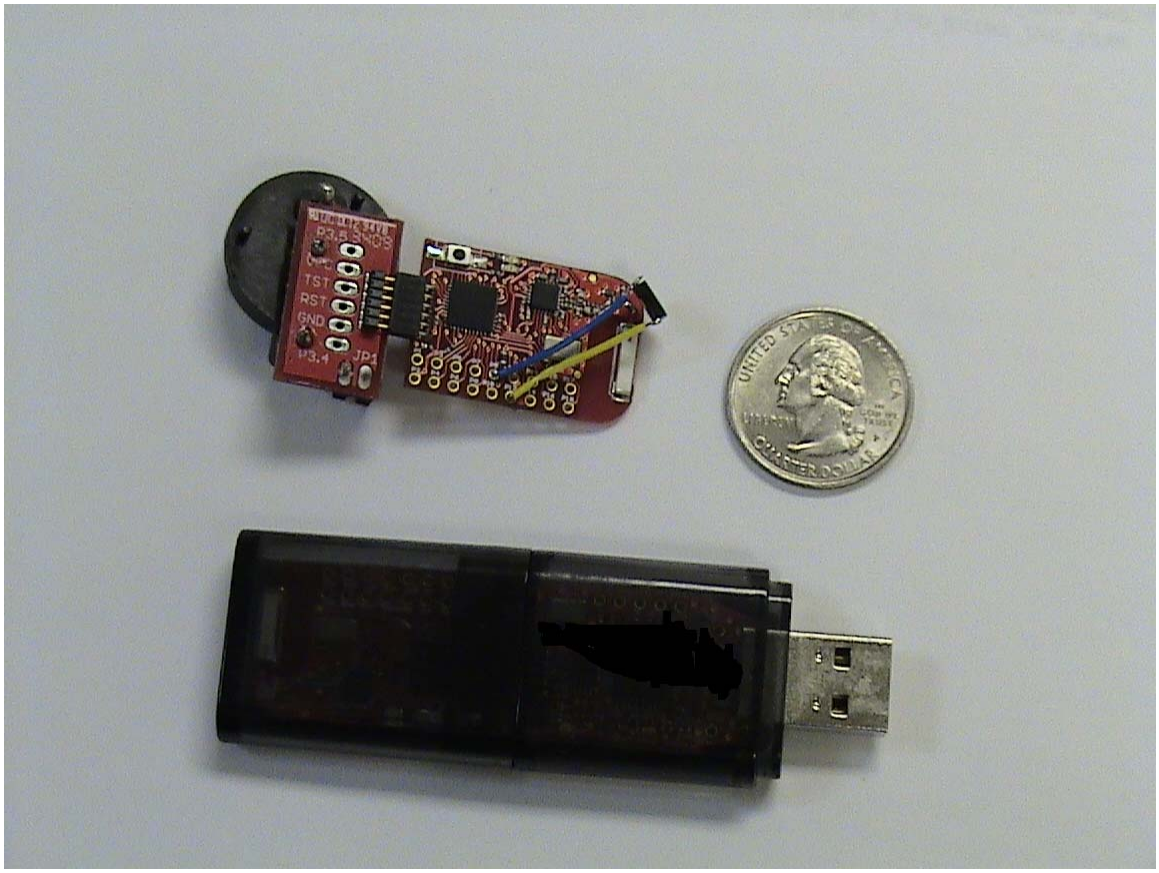
While a unique ID ensures that another RF signal will not defeat alarm activation, a signal interval prevents alarm activation:

1. when the USB device is retrieved directly after use; or
2. when the RF signal with correct ID is briefly blocked.

This signal interval can also be variable to suit owner preference if desired as an optional feature.



This is a complete set of the base unit (show in right side with micro buzzer, battery is not shown in this picture) and USB device RF transmission unit (show in left side). (The circuit is about the size of an U.S. quarter.)



This is a complete set of the base unit and USB device RF transmission unit. The upper side is the base unit with lithium battery. The lower side is the USB device RF transmission unit with a USB type A male connector. (This unit is much bigger than the circuit required due to this is from a general purpose development kit.)

When the USB device RF transmission unit is inserted in a computer, it starts to send RF/wireless signal every second and the green LED lights flash indicate the unit is working properly.

The base unit is under lanyard and always with the users. When it receives RF/wireless signal from the USB device RF transmission unit, the green LED turns on to indicate a corresponding RF/wireless signal (with correct ID number) was received in the last three seconds. The micro-buzzer is OFF at this time.

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