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A METHOD TO SPEED UP THE SYSTEM WAKE UP TIME

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Abstract

The invention is about an idle computer that is in hibernation mode in an interior space. For example, in your personal office, hotel, or room, the computer can be woken up when you open the door and come into the space in order to speed up the resume time. At the time when you open the door, an air pressure-sensing built-in module will detect the change of air pressure in the interior space. If the air pressure detector detects a momentary air pressure change slower than a preset air pressure safety value, then it will send out a corresponding air pressure abnormal signal to trigger the system to wake up.

Method

We use an air pressure sensor which connects to the embedded controller (EC) to enable the early wake up mechanism. When you open and close the door, there is a pressure difference between the indoor and outdoor air, so other doors and windows will vibrate. When the door is opened, the door is like a piston pumping from the room. When the door is closed, the door is pressed into the room. When the door speed is faster, the air pressure difference is larger.

Our disclosure is when a user opens the door and comes into the room, the air pressure will become lower due to some air flow that is leaked and flows out of the door. There will be a Δ P between the original air pressure in the room, P1, and the pressure after the user opens the door and comes in, P2. Δ P=P1-P2. When the Δ P> a pre-defined value, the EC will trigger the SCI to send out a Q event to the operating system (OS) to wake up the system.

The function block is depicted below in Figure 1:

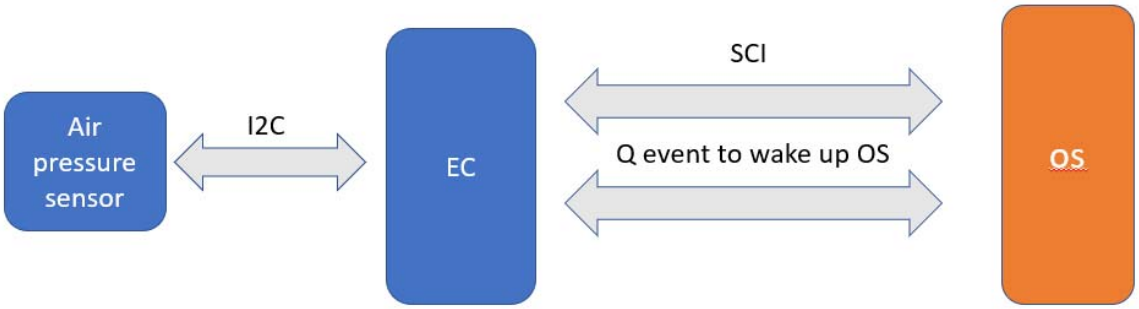

Figure 1

The concept of capacitive pressure sensors are leveraging the charging and discharging of capacitors, as well as rectification, shock, and other functions to detect the small change of the air pressure. Capacitive sensing is the conversion of the physical amount to be measured, such as displacement, pressure, voltage, etc. into a capacitive change. Most are made up of air as a medium in the middle of two parallel plates, and sometimes by two parallel drums or other parallel faces of shapes. The pressure to be measured is applied to a movable diaphragm by channel import and the relative position change sits between the diaphragm under pressure and the fixed electrode plate. This also makes the electrical capacity of the fixed electrode plate change accordingly, so the pressure value can be obtained by measuring the change of the capacity. Capacitive pressure sensors are better suited for low pressure sensing. Therefor it is suitable for indoor gas changes produced by the differential instrument pressure. .

Figure 2 shows the code flow of the disclosure:

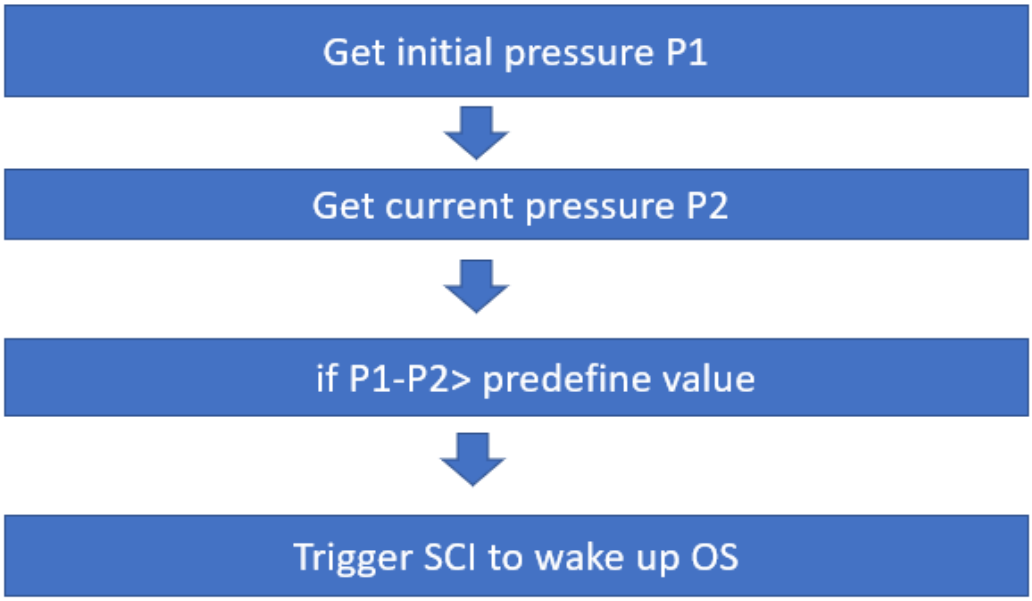
Get initial pressure P1
Get current pressure P2
if P1-P2> predefine value
Trigger SCI to wake up OS

Figure 2

The algorithm is:

```
Read (I2C, address, pressure value P1);

While (1)
{
    Read (I2C, address, pressure value P2);
     If (P1 – P2 > predefine value)
        {
              trigger SCI to wake up OS;
        }
 }
```

Disclosed by David Ke, HP Inc.