Bullet points:

1. This thermostat can be sold to the student accommodation company and they can sell it to students as an additional services when students decide to move in. It is likely that most of student will buy this product because the radiators in the flat make tenants either feel too cold or too warm in the winter and some of them have to buy another radiator, which has no time limit, to solve this problem.
2. There is a measurement tool to measure a push force. Asking mechanic guys for help. Andy Race does not have any measurement measuring pushing but just pulling.
3. Testing Crystal Oscillator

To execute code, the 87C52 requires a stable clock from the crystal oscillator. The crystal oscillator should not be measured directly, because the capacitance of multimeter leads can change the frequency or in some cases cause the oscillation to stop.

The easiest way to verify the clock is by observing the ALE signal. When the 87C52 is clocked correctly, this pin outputs a square wave at 3.6864 MHz with a 33% duty cycle. It is a digital output with drive sufficient to be measured directly.

Most multimeters can not make AC or frequency measurements at this high frequency. However, the DC voltage measurement will show the average voltage. If you measure 1.67 volts DC on the ALE pin, the crystal osciallator is probably working.

TODO: what happened to that photos for figure 2, showing lead on ALE.

If you have an oscilloscope, you can measure the ALE signal. You should see the waveform shown in figure 3.