Background:

THEREMICRO/TEREMINI is the nickname for the simplest type of capacitive sensor that in the past has been given the name "theremin" (originally "termenvox" - by his inventor Lev Sergeyevich Termen). The invention goes hand in hand with the pioneering years of radio - electronic amplification - the 1920s. In fact, it is a cast-away of the development in the field of radio - namely: the heterodyne (frequency mixing) principle and the observation of the capacitive properties of human body. With termenvox, this usually undesirable effects were put to good use.

Termenvox is in essence a capacitive sensor that functions by comparing the frequencies of two oscillators. One of the oscillators is fixed and the other is coupled with the antenna to its surroundings. A human moving their hand acts as a capacitor to ground and adds themself to the oscillating system. The closer the hand (or any part of the body) - the higher the total capacitance and thus the lower the oscillating frequency. The free-running frequency (no hand near the antenna) of this variable oscillator should ideally be the same as that of the fixed frequency oscillator - making the difference of these two frequencies equal to zero.

Links:
www.cirkulacija2.org/
www.3via.org/records/
www.ljudmila.org
wiki.ljudmila.org/Theremidi_Orchestra
List of components:

- 4x 22 KΩ resistor // Lines: red-red-orange-gold
- 1x 27 KΩ resistor // Lines: red-violet-orange-gold
- 3x 270 KΩ resistor // Lines: red-violet-yellow-gold
- 2x 100 pF capacitor // Looks like little brown balls
- 1x 10 nF capacitor (15nF may be in kit)
- 1x 100 nF capacitor // has .1J100 written on it
- 2x 10 uF electrolytic capacitor // be careful you turn it the right way
- 1x 10 KΩ linear potentiometer // spinning knob with 3 connectors
- 1x 1N4001 diode // black with silver line
- 2x 4011 - quad 2-input NAND gate integrated circuit // be careful you turn it the right way
- 1x Female audio socket
- 1x 9V Battery socket

1 x theremini 4011 PCB board – Made in Slovenia with love and poor man’s SMD technology ♥

You will also need soldering iron, some tools, soldering station and 9V battery. Use any kind of conductive material to make an unique antenna!

HINTS: Solder the chip first and be careful that you put it in the right position. Be aware of the half-circle on the chip - it marks the first leg. Some of the components are polarised (e.g. diode and electrolytic capacitor) - that means you need to solder them in a specific orientation - follow the pluses (+) and minuses (-) on the picture.