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## Volcanic Energies

We model measuring of volcanic phenomenas in a simulated enviroment. We use for this programmed microcontrollers and external sensors. We imitate phenomenas with physical and chemical experiments in the volcan model.

The measuring station placed in the environment of the volcano model, transmits the measurement dates to a remote volcanological center via a Bluetooth connection.



```
from microbit import *
import radio

radio.on()

goz_ertek = 0
hom_ertek = 0
gaz_ertek = 0
rez_ertek = 0
zaj_ertek = 0
tuz_ertek = 0

while True:
    if button_a.was_pressed():
        radio.config(group = 1)

    if button_b.was_pressed():
        radio.config(group = 2)

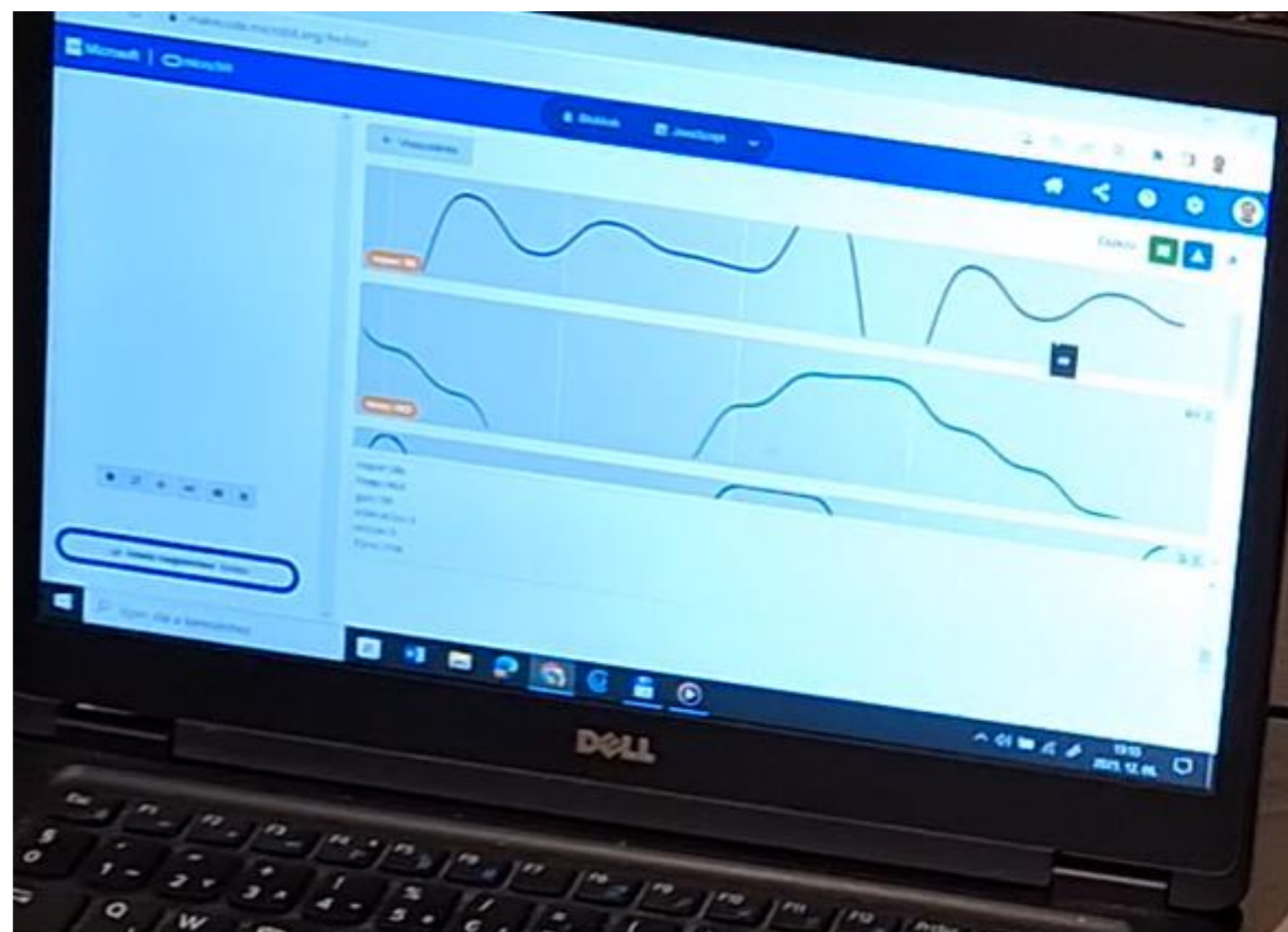
    uzenet = radio.receive()

    if uzenet:
        parameter_nev = uzenet[0:3]
        parameter_ertek = int(uzenet[3: ])

        if parameter_nev == 'goz':
            goz_ertek = parameter_ertek
```

```
on radio received receivedString
if receivedString = "SOS" then
    show string "alarm!" at x 0 y 0
    digital write pin P1 to 1
    pause (ms) 500
    clear LCD
    digital write pin P1 to 0

on radio received name value
serial write value name = value
```



Volcanological center is represented by a 3D planed and printed earthquake-proof model. We can see here the measurment results on graphts. We perform data analysis.

The measurements are as the same as the reality, and they support technologies based on the utilization of volcanic and geothermal energy.