

1. FACIAL TEMPERATURE EMULATOR

To characterize the system, a validation system was developed as previously explained in section 2.2. For its calibration, the 11x11 cm square was divided into approximately 9 equal parts, and the temperature at each of these points was measured with the DAQ970A[6]. The following images illustrate the process of measuring the different temperatures:

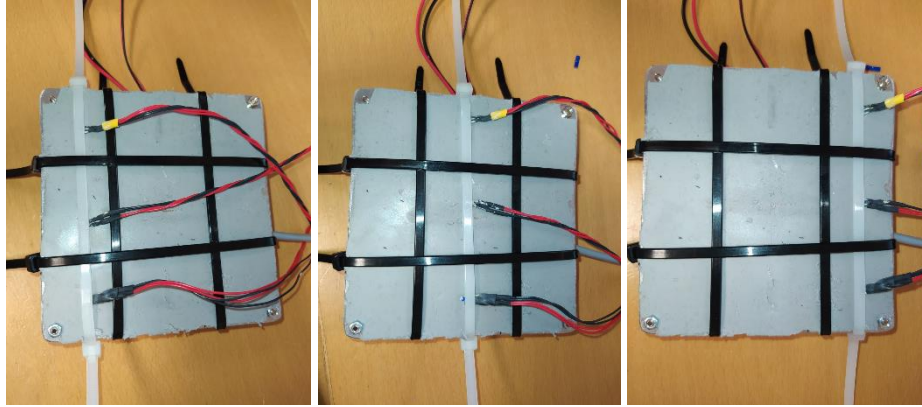


Figura S1. Detail of the position of the measuring probes.

At this point it should be specified that the different measurements taken are shown in the form of a 3x3 table where each point corresponds to one of the sectors of the validation system. The measurements obtained are as follows:

Table S1: Measurements taken at room temperature (24.5 °C)

| | | |
|-------|-------|-------|
| 24.31 | 24.37 | 24.32 |
| 24.5 | 24.51 | 24.49 |
| 24.65 | 24.62 | 24.66 |

Table S2: Measurements taken with temperature set at 36.5 °C

| | | |
|-------|-------|-------|
| 35.88 | 36.01 | 35.93 |
| 37.35 | 38.23 | 37.33 |
| 35.87 | 35.98 | 35.9 |

Table S3: Measurements taken with temperature set at 37°C

| | | |
|-------|-------|-------|
| 36.63 | 36.74 | 36.61 |
| 37.74 | 38.51 | 37.7 |
| 36.64 | 36.72 | 36.69 |

Table S4: Measurements taken with temperature set at 37.5 °C

| | | |
|-------|-------|-------|
| 37.18 | 37.35 | 37.27 |
| 38.56 | 39.41 | 38.52 |
| 37.23 | 37.48 | 37.34 |

Table S5: Measurements taken with temperature set at 38 °C

| | | |
|-------|-------|-------|
| 37.97 | 38.06 | 37.94 |
| 39.21 | 39.87 | 39.08 |
| 38.08 | 38.21 | 38.09 |

Table S6: Measurements taken with temperature set at 38.5°C

| | | |
|-------|-------|-------|
| 38.36 | 38.53 | 38.42 |
| 39.43 | 40.42 | 39.54 |
| 38.34 | 38.57 | 38.38 |

2. Neural networks

Next, we can see the parameters with which the neural network has been designed and the model obtained:

| Input shape: (129, 124, 1) | | |
|-------------------------------|--------------------|---------|
| Model: "sequential" | | |
| Layer (type) | Output Shape | Param # |
| resizing (Resizing) | (None, 32, 32, 1) | 0 |
| normalization (Normalization) | (None, 32, 32, 1) | 3 |
| conv2d (Conv2D) | (None, 30, 30, 32) | 320 |
| conv2d_1 (Conv2D) | (None, 28, 28, 64) | 18496 |
| max_pooling2d (MaxPooling2D) | (None, 14, 14, 64) | 0 |
| dropout (Dropout) | (None, 14, 14, 64) | 0 |
| flatten (Flatten) | (None, 12544) | 0 |
| dense (Dense) | (None, 128) | 1605760 |
| dropout_1 (Dropout) | (None, 128) | 0 |
| dense_1 (Dense) | (None, 2) | 258 |
| ===== | | |
| Total params: 1,624,837 | | |
| Trainable params: 1,624,834 | | |
| Non-trainable params: 3 | | |

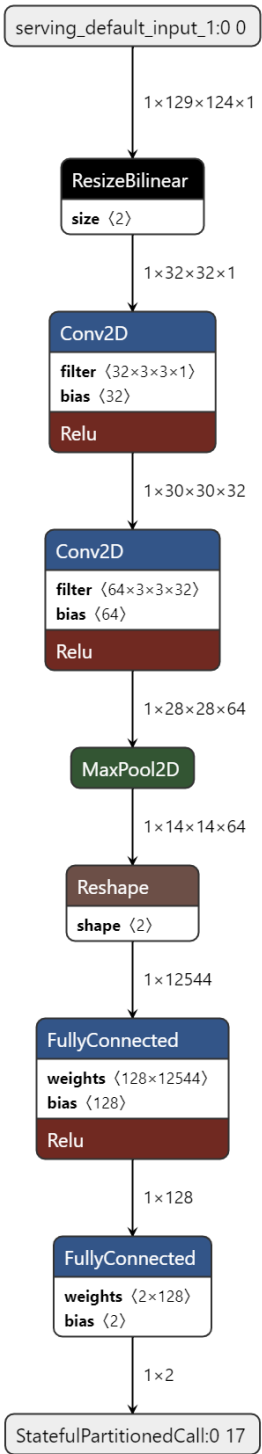


Figure S2. Selected model (left) and diagram of the neural network (right).