

A.I. THERMAL ROOM SENSOR

Sense Human Presence - Temperature Difference - A.I. Analytics - Smart Air Condition Control



Leveraging upon **real-time** input from thermopile array sensor, the system is able to determine the environmental status like temperature difference with the ambient surrounding and human presence & activity for output.

Thermopile array sensor would then also be activate to carry out the monitoring of humans as long as there is a **temperature difference** of at least **4°C** between the humans and ambient surrounding.

Micro-controller would **intelligently detect** humans throughout till they are out of the field-of-view of the thermopile sensors.

The **single thermopile array sensor** version would detect humans as long as there is a temperature difference of at least 4°C between the humans and ambient surrounding. There would be based on the absence of any other heat sources like lamp, etc inside the field-of-view of the sensor.

For any static heat sources present in the environment, the module would **allow the option of carrying a calibration** step prior to the normal operation.

This calibration must be conducted without any humans in the field-of-view of the sensor.

During the calibration process, the heat sources must be turned on to allow the module to identify their locations and mask off all thermal pixels belonging to them.

This masking data would be stored inside the memory permanently until another calibration is conducted.



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“Green and sustainable solution with smart analytics to improve productivity and save electricity.”

SPECIFICATIONS

- Operates in RTOS
- Provides 3.3/5Vdc Power Input
- Provides RS232 serial communication interface
- Provides I/O interface
- Provides temperature difference with ambient surrounding output via RS232*
- Provides ambient surrounding temperature output via RS232
- Provides presence / absence of human(s) via I/O
- Provides specific human activity detection like active eg. moving about / non-active mode, eg. sleeping, seating
- Provides configuration settings like object size threshold via RS232
- Provides calibration commands via RS232
- Minimum detected heat source size of 2 thermal pixels
- Angle of viewing is subjected to thermopile array sensor choice
- Temperature sensitivity is subjected to thermopile array sensor choice
- System does not guarantee any detected objects to be human

Remark: *There must be at least 4°C temperature difference for output. It means that the ambient surrounding must be cooler than the human body by 4°C (minimum).