

IDEASQUARE

PELTIER COOLING BOX PROTOTYPE FOR SILICON PHOTOMULTIPLIER TESTING



Project Overview

The goal of this project is to build the first prototype of a cooling system which is needed to test SiPMs using a Peltier module, fans and sensors to stabilize the temperature.

Requirements

Dimensions of 30 x 30 x 15 cm
Light can't get inside
Temperature from -10 °C to 35°C, 1 °C accuracy

Procedure

Mechanics

Liquid cooling system

Plexi

Aluminium frame

Gabriel

Inside fan

Electronics

Wiring

Testing

Soldering

Programming

LabView (myRIO)

Arduino

VS

Winner!

We decided to use Arduino mainly because we had some experience with it and there wasn't enough time to learn new software. It's computing power was also enough for the project.

Pros:

- Better processor
- Easier to perform advanced operations
- Can easily transfer data to the computer

Cons:

- Harder to learn
- More expensive

Pros:

- Easy to learn
- Cheap
- More available libraries

Cons:

- Hard to perform advanced operations

Conclusion

After these steps we finally did it! We were able to build our own prototype of Climatic chamber controlled by Arduino. It will be used for purposes of scientific research groups at CERN for testing SiPMs tubes in search for neutrinos.

FACTORY-MADE
1500 CHF

PRICE
of climatic
chamber

OUR CHAMBER
550 CHF