# Apresentação final

## Primary mission

* What it is
* Temperature external results
* Pressure results
* How it compares to previsions
* What can we conclude + discussions

## Secondary mission

* What it is
  + Generator
  + Cork
* Questions
  + E produzida = E usada (%)
  + Se a potencia teórica foi próxima a expectável
  + Tempo de vida aumento ?
  + Qual é que foi o ganho de espaco e peso
  + Previsões no espaco
  + Será q aguenta as condições de temperatura
  + Espessura da cortiça (engrossar) testado empiricamente

Good morning. We are the team responsible for the project CanACork. Today we will be reviewing and discussing the results obtained from our satellite’s launch.

Part of its mission includes measuring and collecting data on the atmospheric pressure and temperature.

(analysis)(pressure and temp. with time and altitude)

* The results
* Expectations and how it compares
* Any anomalies? Why

Secondary mission. Our project’s main idea was born out of the current need for sustainable and cost-effective upgrades to current satellites. The focus revolved around the CanSat’s thermal management. Usually, the heat flows originated by electronic components are discarded into space to prevent the system from overheating. So, our interest lied on the potential use of this residual heat as a way of generating electrical power to feed in the main power system. To accomplish this:

Due to its accessibility and previous uses in spacecrafts we opted for a case made of cork, in place of the usual aluminium or plastic. Interestingly this material withstands incredibly high temperature conditions and is in fact an excellent thermal insulator.

This part happened to compliment another part of a mission: the use of a thermoelectric generator, which is a device that generates energy through a temperature gradient, explained by the Seebeck effect. This gradient is attained using the CanSat’s internal heat and the exterior’s colder conditions. Theoretically, since the atmospheric temperature lowers with altitude and the CanSat’s internal heat increases, we would be able to generate more power as the satellite goes higher. The data obtained allows to verify the power generated by the TEG and ascertain the efficiency of this mechanism. As we will see now in the graphs, the energy generated by the TEG is clearly insufficient to potentially feed an entire electronical system.

The first graphic shows the generated power in function of the temperature differential, calculated through the values in the datasheet. (low). However, as is visible here (experimental values), the results were much lower than expected.

Consequently, it becomes evident that the generated power is significantly inferior to the power consumed. The energy produced, calculated using the area of the graph, amounted to x.

Hence, the power yielded (%) indicates clearly the inefficacy of this mechanism as a satellite’s source of energy.

Overall, from these experimental values, we can point out some flaws and problem with CanACork’s model

To optimize the process, our launch was in the morning to make use of the cold +-

* Calculo da energia
* Potencia gerada em função da variação de temp teórica
* % energia consumida, potencia gerada
* Explicação teorica (não aplicável)
* Aplicações terrestres