Hot-plate Controller using PID

Description

PID controller, which consists of proportional, integral, and differential parts, is widely used in control systems. PID systems in general work as a control feedback loop mechanism. In these systems, error; the difference between the required output and the current output is calculated continuously and adjusted using proportional, integral, and differential parts until the desired, stable output level is reached. In this project, the temperature of a hot plate is controlled using PID.

Outcomes

You need to design an Analog PID Controller to control the temperature of a hotplate with the following specifications.

- Temperature range: up to 200o C
- The complete design should be in the analog domain
- It should be able to maintain any given temperature value (in the given range)
- All the groups together need to create a common platform to measure the temperature and plot the temperature variation with time (For evaluation)

Notes

- Schematic design of the circuit needs to be prepared.
- The calculations need to be clearly given. You are allowed to use one PCB for the product and PCB should be designed using Altium Designer.
- Marks will be allocated based on the transient time of the controller.