



ES 311 HEAT AND MASS TRANSFER

GROUP A3 - ARDUINO BASED TEMPERATURE SENSOR

PHASE 3: BENCHMARK RESULTS

GUIDED BY: PROF. SOUMYADIP SETT

PROJECT MENTOR: AAQIB KHAN



OBJECTIVE

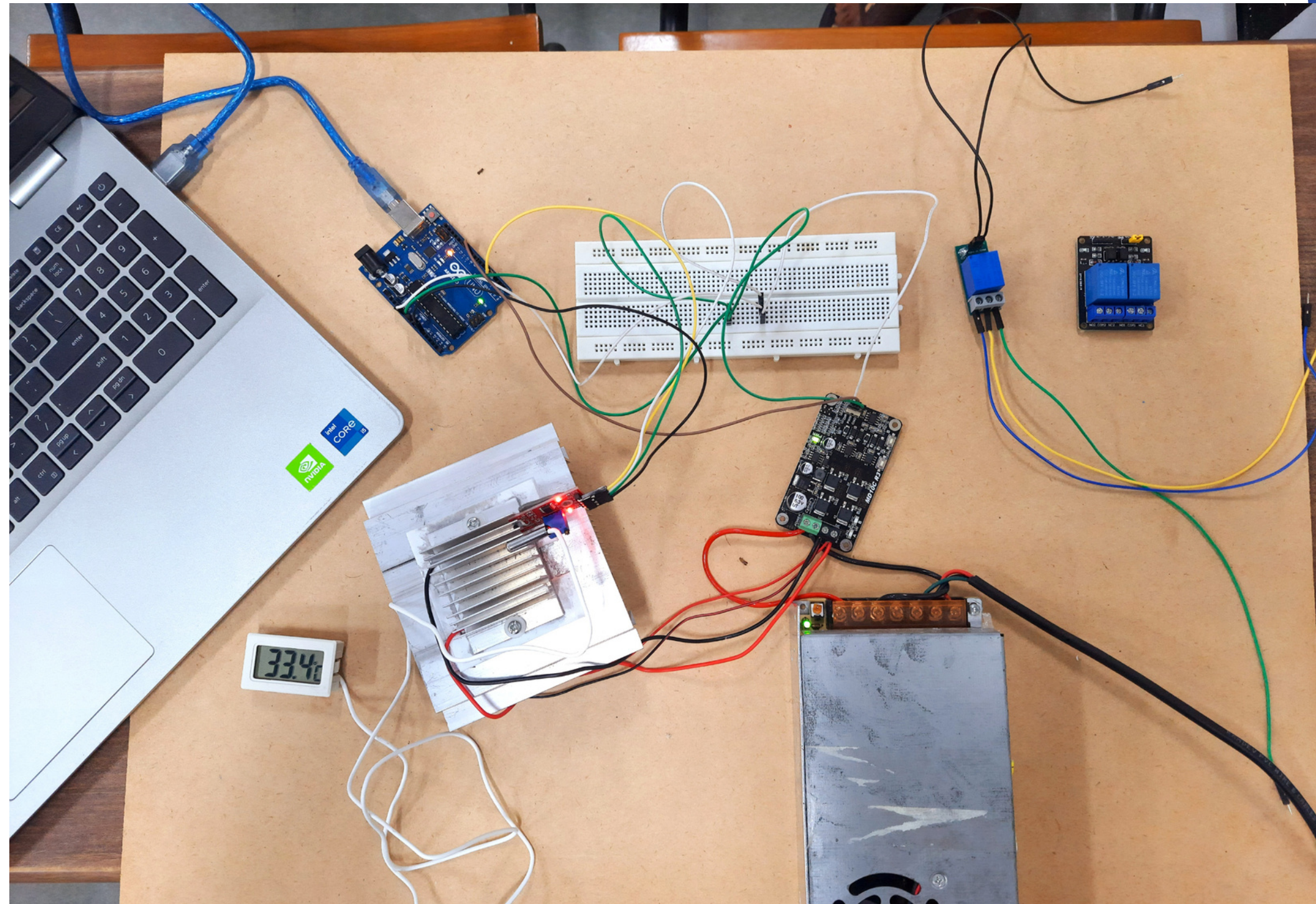
**TO CONTROL THE SURFACE TEMPERATURE OF
THERMOELECTRIC COOLER USING ARDUINO BASED
SENSOR**



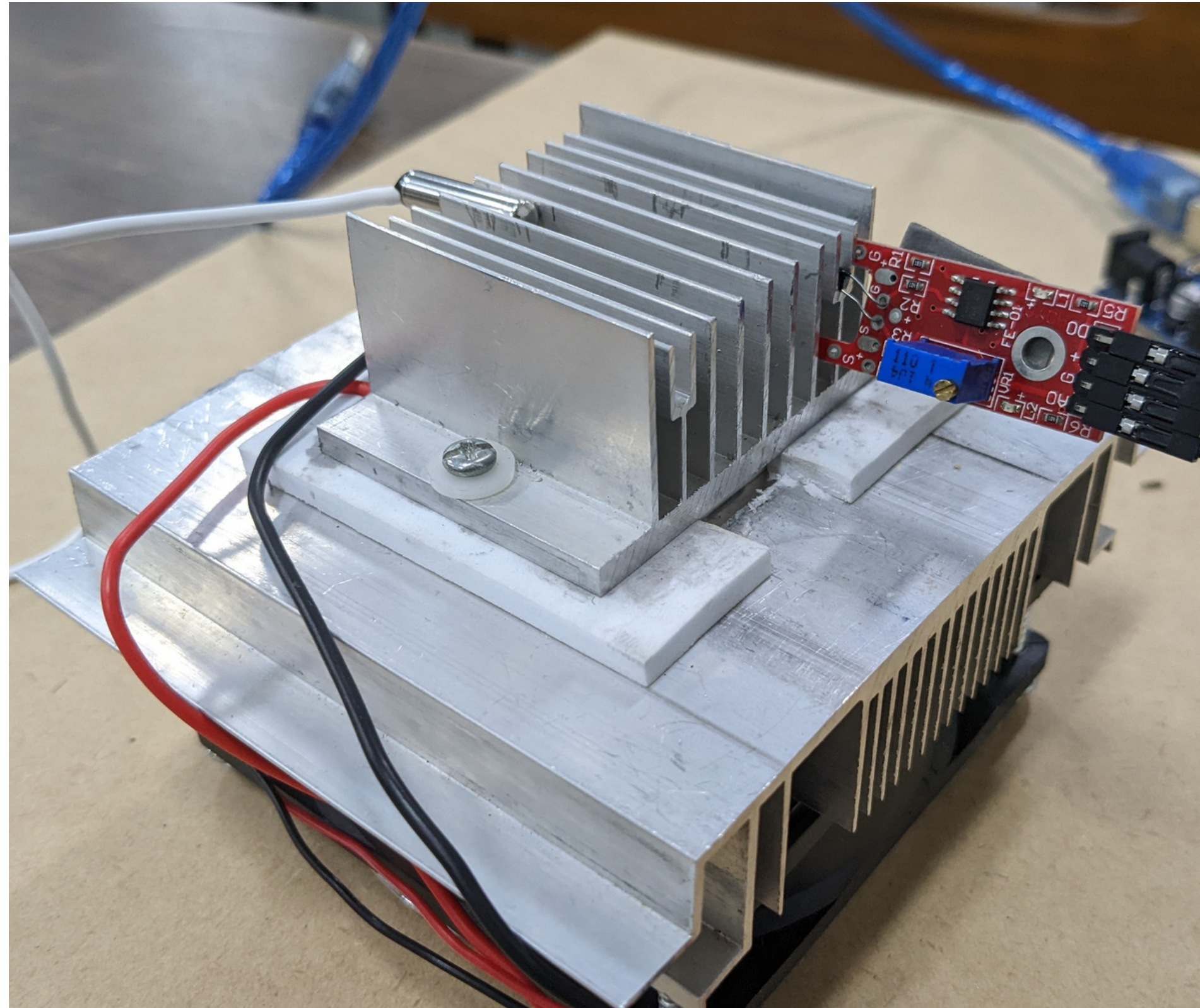
IN THIS VIDEO....

- Circuit Diagram
- Code explanation
- Theory and Application of PID
- Benchmark Results (Video + Graphs)
- Challenges and Troubleshooting
- Innovations and Bonus Experiments
- Future Plans

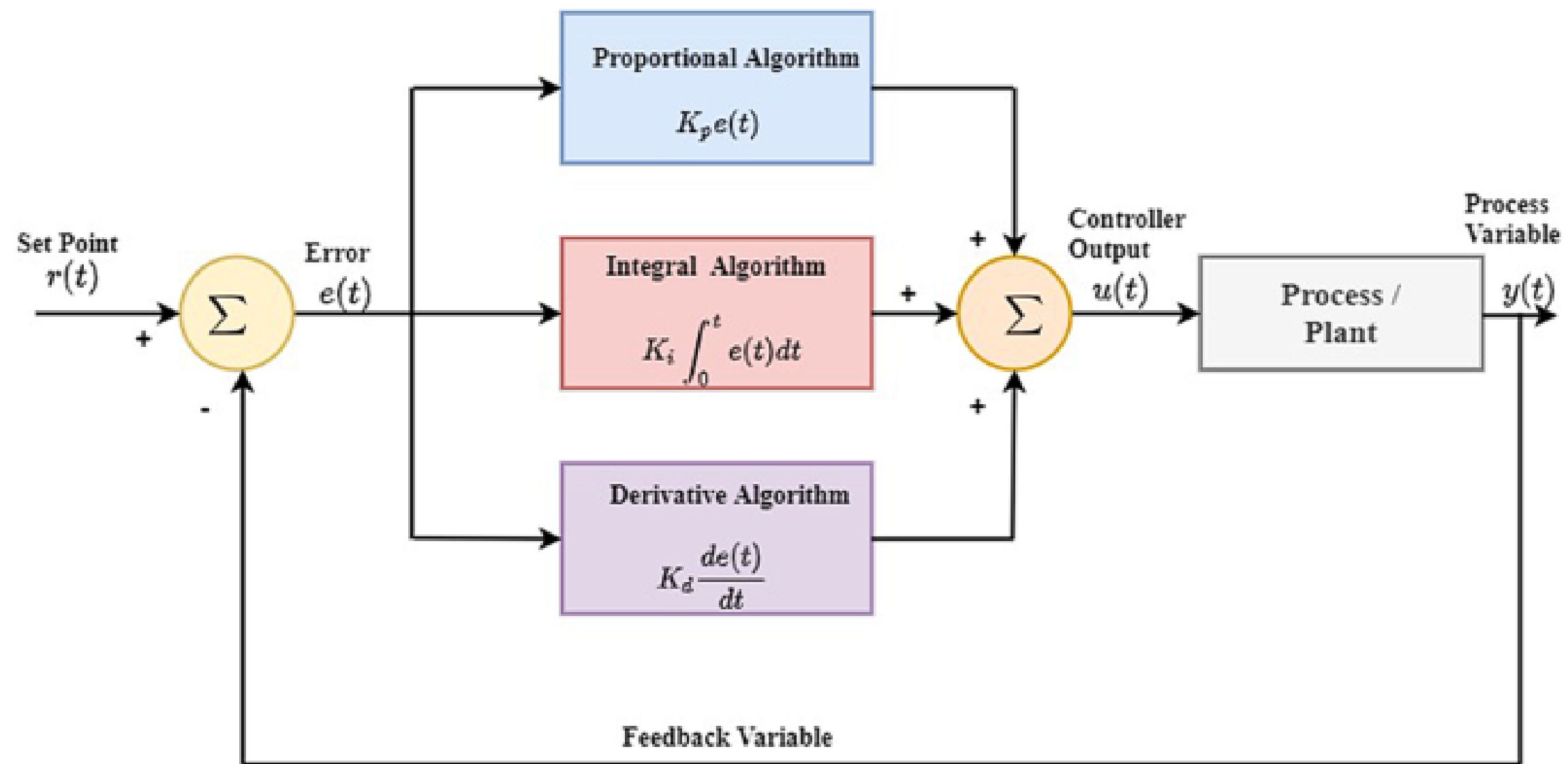
CIRCUIT DIAGRAM



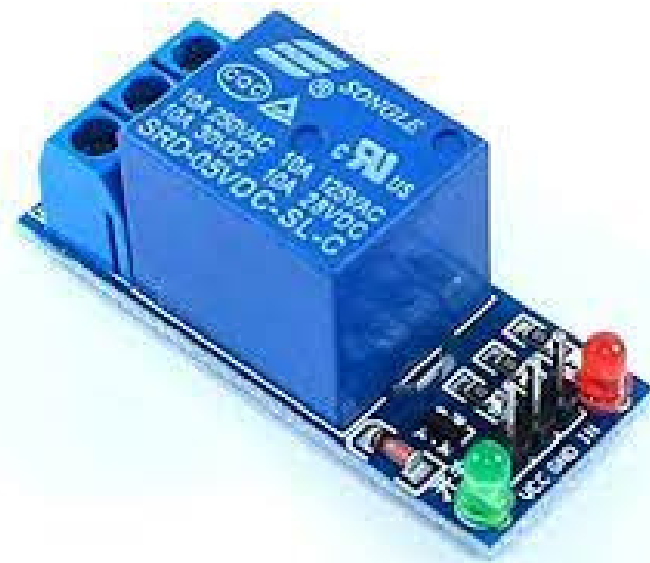
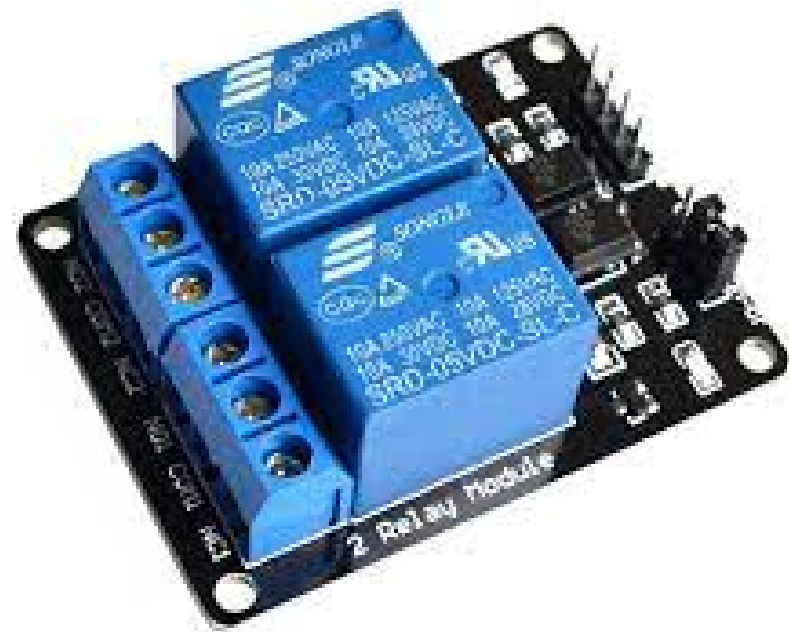
TEMPERATURE SENSOR



THEORY AND APPLICATION OF PID



CHALLENGES AND TROUBLESHOOTING



RELAY



MOTOR DRIVER

PRATICALITY

My laptop when running 3862 applications



INNOVATION AND BONUS EXPERIMENT

PID

- Matlab Autotune
- Root Locus
- Hyper parameter tuning algorithms

Bonus Experiment

- Humidity sensor
- Effect of heat sink on peltier



Temperature vs Time & Error vs Time

Temperature Error SetTemp

