



Problem



The current climate chamber data collection requires an operator to walk to the test site. There is no digital observation or chamber failure notification.

Objective

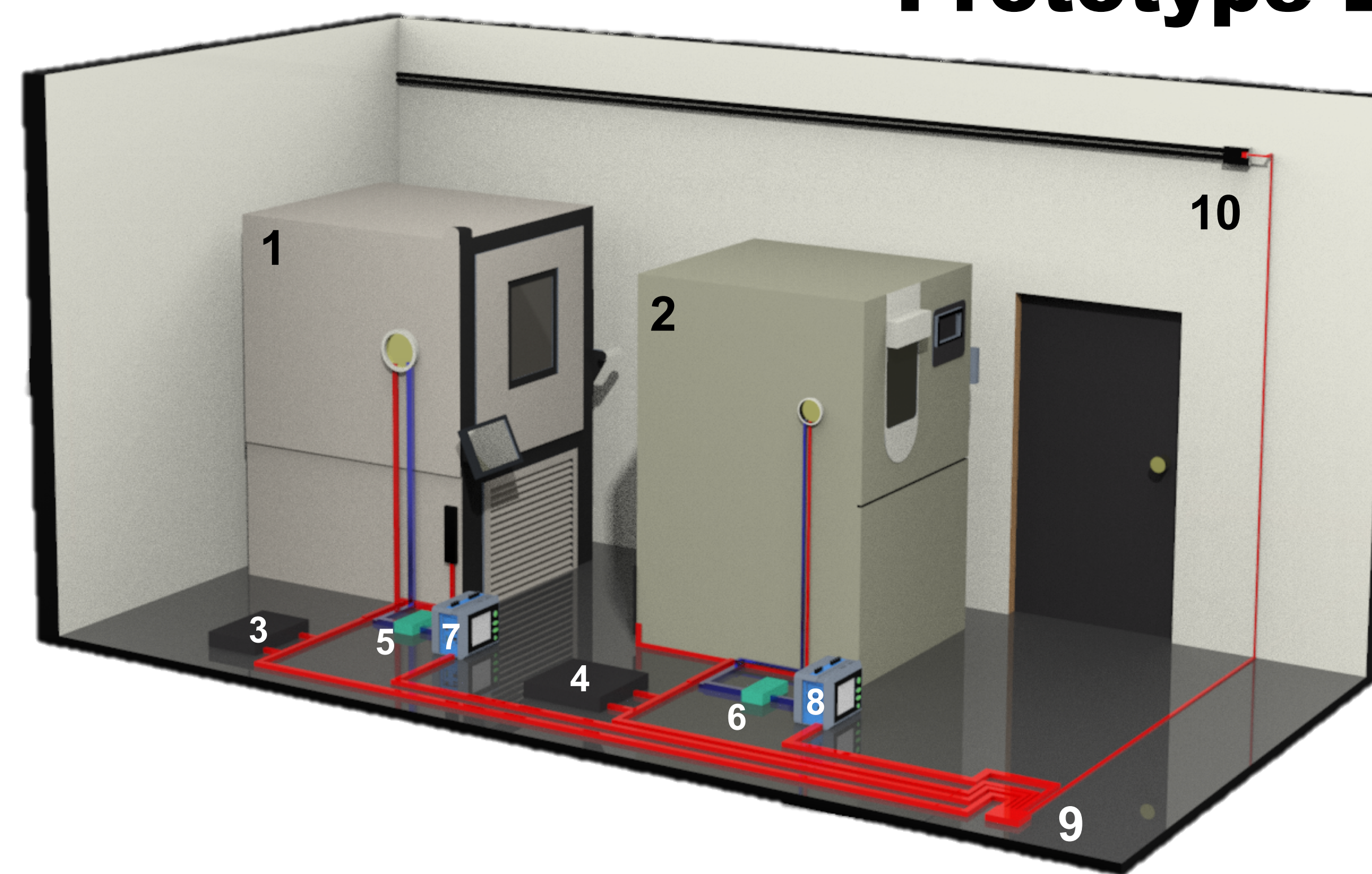


To design a smart integration network and an observation system with remote accessibility for climatic chamber tests.

Project Scope

- Climate chamber failure notification
- Data logger connection
- Camera monitor of test objects
- Network accessibility
- Security

Prototype Design

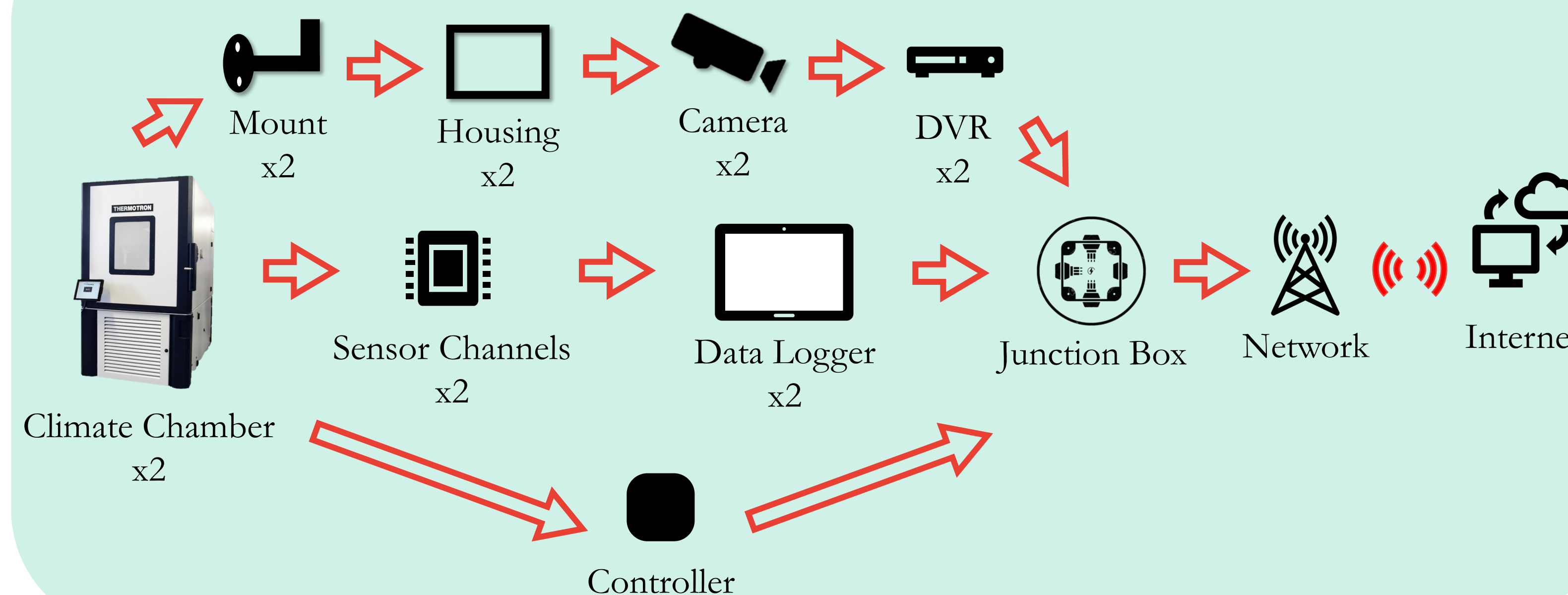


Key

- Ethernet cable
- Channel cable
- 1. Thermatron climate chamber
- 2. Cincinnati sub-zero
- 3. DVR
- 4. DVR
- 5. Thermal channel
- 6. Thermal channel
- 7. Data logger
- 8. Data logger
- 9. Junction box
- 10. Server connection

Functions	Metric	Target
Connect Data Logger to Network	Internet Speed, Megabits	30 Mbps
Live Stream Visual Monitoring	Frames per Second	60 FPS
	Internet Speeds Uploaded, Megabits	30 Mbps
	Useable space	6 × 6 × 6 in
Save Recordings	Weight	50 lbs
	Internet Speed, Megabits	20 Mbps
Thermal Analysis of Visual Monitor	Temperature	-99 – 356°F
	Relative Humidity	98% RH

Network Diagram



Future Work

- Prototype
- Finalize Bill of Materials with Sponsor
 - Finalize designs and dimensions
- Create Proposal
- Communicate with data logger and chamber manufactures for connection instructions
- Camera Design
- Program microcomputer for prototype
 - Perform initial testing

Acknowledgements

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