

as fan not running) which prevented a full-scale testing of the algorithms in order to prevent potential equipment damage.

Even with these issues, the refrigeration demand defrost application was tested on two medium temperature cases. Multiple VOLTTRON agents were simultaneously executed controlling two refrigeration cases and monitoring the RTUs for control decisions while pushing observed variable values and control commands to a remote data store.

Figure 5 illustrates the supervisory control in operation for controlling the three roof-top units. Because of the time of the year in which these experiments were conducted, human intervention, such as placing a finger on a thermostat was required to trigger the control to issue supervisory commands.

CONCLUSION

The VOLTTRON applications were tested and demonstrated in an in-store deployment. Even with the limited testing that was possible, the experiment provided proof-of-concept that the strategy could be effective.

The primary difficulty in making an extension to control arbitrary loads is the difficulty to obtain appropriate maxDelay and minActive values for the equipment in question, and to obtain a reasonable model of the systems that could be used for testing and refinement of the control strategy prior to live tests in a supermarket or convenience store.

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