UNIVERSITY OF TARTU
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Minimizing the Energy Consumption for Heating: Airforced Systems OÜ Case Study

Bachelor's Thesis (9 ECTS)

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Minimizing the Energy Consumption for Heating: Airforced Systems OÜ Case Study

Abstract:
As the share of heating, ventilation and air condition (HVAC) is high and ever-increasing, it is important to try to increase the energy efficiency of these systems. While much of the energy efficiency can be attained through insulating housing or creating more efficient HVAC systems, control systems hold potential for savings as well.

The process of creating a proof of concept model for HVAC optimization is described, as well as the system's preliminary results. By combining local weather forecasts with logged historical data, it is possible to selectively avoid cooling in the afternoon. By preparing for cold nights, it is possible to postpone or fully avoid spending energy on heating.

Keywords:
System control, ventilation, energy saving, IOT system

CERCS: P170

Kütmisele kuluva energia vähendamine: Airforced Systems OÜ juhtumianalüüs

Lühikokkuvõte:
Kütte-, ventilatsiooni- ja kliimaseadmete osakaal energiatarbest on suur ning tõusuteel. Keskkonna ning elektriarvete kokkuhoiu nimel on oluline elektri tarbimist vähendada. Kuigi energiasäästu saab saavutada parema soojustuse või tõhusamate ventilatsioonilahendustega, tasub tähelepanu pöörata ka konditsioneerilahenduste kontrollsüsteemidele.

Kirjeldatud on mudel ning protsess mudeli loomiseks, mis vähendab kütmisele kuluvat energiat. Kohalikku ilmaennustust ning ventilatsioonisüsteemi salvestatud andmeid kasutades on võimalik valikuliselt vältida aktiivset jahutamiset õhtupoolikul. Valmistudes külmadeks õhtuteks ette, on võimalik kütmist edasi lükata või täielikult ära jätta.

Võtmesõnad:
Süsteemi juhtimine, ventilatsioon, energia säästmine, värkvõrk

CERCS:P170

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