A Study on Monitoring an Air Conditioning (AC) system in a Home environment using Machine Learning Techniques

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Abstract:
Nowadays, the air conditioning systems are used to maintain room temperature within a particular range. But the distribution of temperature is not uniform which means it may vary depending on the range. Even though the sensors are installed at fixed and dynamic locations, it cannot react to the varying room conditions due to the human behaviour. In this paper, study on SVM (Support Vector Machine), ANN (Artificial Neural Networks) and S tream based machine learning approach is performed to control the air conditioner that uses an effectual decision tree and Stochastic Adaboost based Logict model. The above techniques are Machine Learning techniques, which have been used and finally a comparison has been done on the three techniques altogether to find out the best simulation technique to control the air conditioner. Everyone can ask how an exact or near cooling is required for the room can be predicted by the aforementioned algorithms. But it can be easily answered based on the number of persons present in the room and automatic temperature cooling can be done inside the room. In addition to this, energy consumption can also be done. That is, if the the number of persons count is less, then room temperature can be reduced and if the persons count is more, the room temperature can be increased. Finally, various performance metrics like accuracy, sensitivity and specificity for all the three techniques are calculated and compared with one another. The software used here is Matlab R2018a.

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