

CONSTRUCTION OF MINI FAN COIL UNIT

[A thesis report submitted to the department of mechanical engineering for the partial fulfillment of the degree of Bachelor of Science in Mechanical Engineering]

A Thesis by:

Md. Sujon Ali
ID. No-BME-1602009384

A.K.M Razibul Islam
ID.No-BME-1602009385

Md. Habibur Rahman
ID. No-BME-1602009386

Md.Rashel Hossain
ID.No-BME-1602009387

.....
Supervisor:

Md. Shadrul Alam
Lecturer



DEPARTMENT OF MECHANICAL ENGINEERING
SONARGAON UNIVERSITY (SU)

Dhaka, Bangladesh
FEBRUARY 2020

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Submitted by:

Md. Sujon Ali (BME 1602009384)

A.K.M Razibul Islam (BME 1602009385)

Md. Habibur Rahman (BME 1602009386)

Md. Rashel Hossain (BME1602009387)

Supervised by:

MD. Shadrul Alam

Lecturer

Department of Mechanical Engineering

Sonargaon University



147/1, Green Road, Tejgaon, Dhaka-1215

February, 2020

DECLARATION

This is hereby declaring that this project work has been performed by us under that supervision of Md.Shadrul Alam and this thesis or any part of it has not been submitted elsewhere for any degree or diploma.

MD. Shadrul Alam

Lecturer,
Department of Mechanical Engineering
Sonargaon University

Signature of the student

Md. Sujon Ali
(BME 1602009384)

A.K.M Razibul Islam
(BME 1602009385)

Md. Habibur Rahman
(BME 1602009386)

Md. Rashel Hossain
(BME1602009387)

ACKNOWLEDGEMENT

This project is accomplished under the supervision of Md. Shadrul Alam, Lecturer, Department of Mechanical Engineering, Sonargaon University. It is a great pleasure to acknowledge our profound gratitude and respect to our supervisor for this consistent guidance, encouragement, helpful suggestion, constructive criticism and endless patience through the progress of this work. The successful completion of this thesis would not have been possible without his persistent motivation and continuous guidance.

The author are also grateful to Professor Md. Mostofa Hossain , Head of the Department of Mechanical Engineering and all respect teachers of the Mechanical Engineering Department for their co-operation and significant help for completing the thesis work successfully.

Finally, we are also grateful to the vice chancellor of Sonargaon University (SU) for his overall support to finish the project works.

ABSTRACT

A microcontroller-based fancoil unit(FCU) fuzzy controller is designed and implemented in this paper. The controller employs the concept of duty ratio on the electric valve control, which could make full use of the cooling and dehumidifying capacity of the FCU when the valve is off. The traditional control method and its limitations are analyzed. The hard ware and software design processes are introduced in detail. The experimental results show that the proposed method is more energy efficient compared to the traditional controlling strategy. Furthermore, a more comfortable room condition could be achieved by the proposed method. The Lorenz curve and the Gina index are introduced in this study and used as indices to depict load features. For a large -scale use in office building, shopping malls, and other buildings, the fan coil unit is investigated in this study. The proposed low-cost FCU fuzzy controller deserves to be widely used in engineering applications.

Authors

Md. Sujon Ali
A.K.M Razibul Islam
Md. Habibur Rahman
Md. Rashel Hossain

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NOMENCLATURE

FCU	Fan Coil Unit.
OD	Outside Diameter.
ID	Inside Diameter.
HVAC	Heating and Ventilation Air-Conditioning.
SOE	Department of Energy.
Qu	Useful Gain Energy.
Q	Volume Flow Rate.
Cp	Specific heat in constant pressure.
C	Degree Celsius.
K	Kelvin
Am	ante meridian
Pm	post meridian
M	meter.
S	second.
ft	feet.
In	inch.
W	watt.
η	Efficiency.
J	joule.
Kg	kilogram.