DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING
ACADEMIC YEAR 2021-22 EVEN
Internal IEEE Seminar – Report

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Title of the seminar	: "PI controlling of Air Conditioning System"
Date	: 28.04.2022
Resource Person	: Mr.S.R.Karthikeyan, AP/EEE, KCE
Beneficiaries	: EEE Faculty Members- 7
Venue	: EEE – Smart Classroom

On behalf of Department of EEE, IEEE Branch has organized Internal Seminar on "PI controlling of Air Conditioning System" for faculty members, Department of EEE on 28.04.2022. The main objective of the internal seminar is to provide exposure to various research areas to our faculty members.

The following points were discussed during the session:

➢ Introduction of controller.
➢ The traditional PID controller is widely used in a variety of industrial production situations and has achieved successful applications.
➢ Model of the air-conditioning system.
➢ The design of the fuzzy PI controller.
  In the design of the PI control, Kp and Ki can be determined according to the mathematical model of the plant, and then the controlled variable can be calculated according to error e, thus the actuator is driven to decrease the system error until the controlled plant to be steady in the tolerance range.
➢ Structure of the adaptive fuzzy PI controller.
➢ Determining the membership function.
  The input of the fuzzy controller is Error E and the variable rate of error EC, and the output is the parameters of the PI controller Kp, Ki.
➢ Constructing the fuzzy rule.
  The main problem with fuzzy logic controller generation is related to the choice of the regulator parameters. Indeed, there is no systematic procedure for the design of a fuzzy controller.

Conclusions:

It is difficult for the traditional PID controller to realize the speedy and accurate response without overshoot, so the parameters self-adaptive fuzzy PI controller is proposed in the air-conditioning system. By making use of PI control and fuzzy control synthetically, the control effect of the air-conditioning system has been increased to a great extent. The hybrid control is designed to eliminate the static error which exists in the fuzzy controller and achieve the requirements for real-time and high precision by means of adaptive tuning the system parameters.
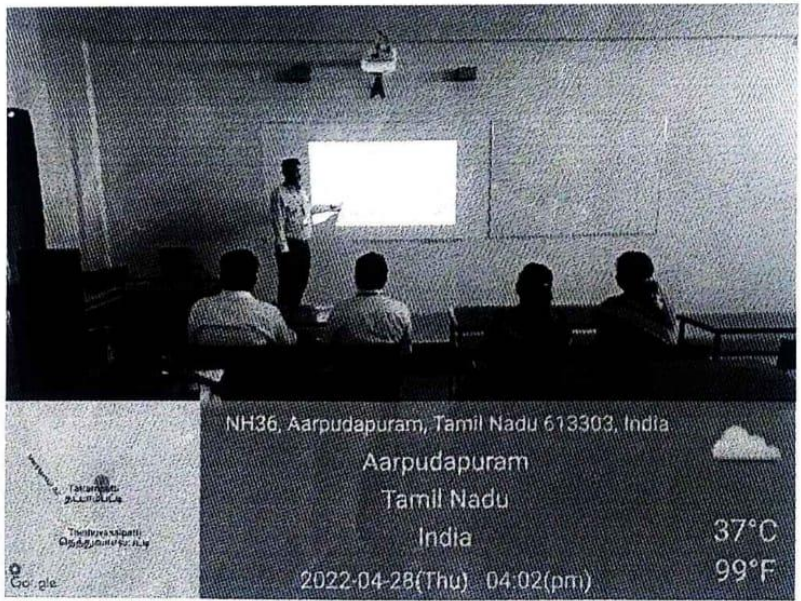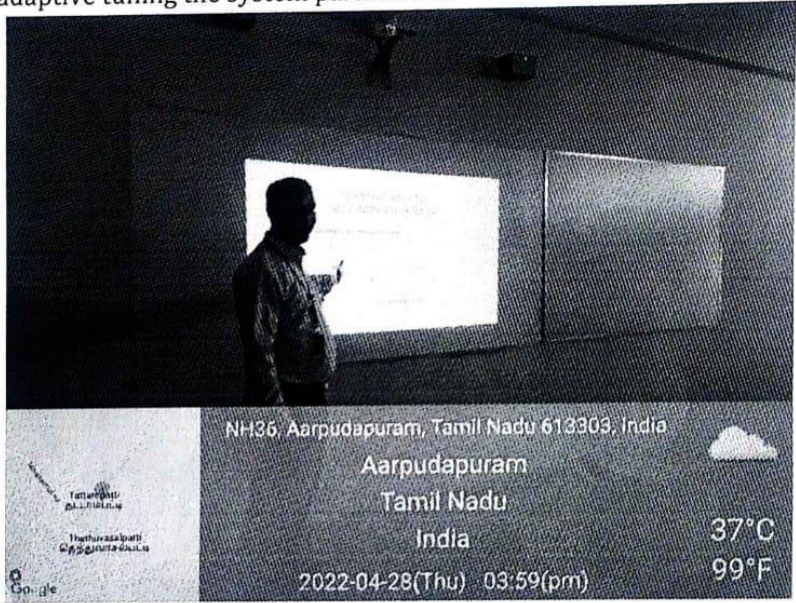
Snapshot from Seminar

Feedback Analysis:
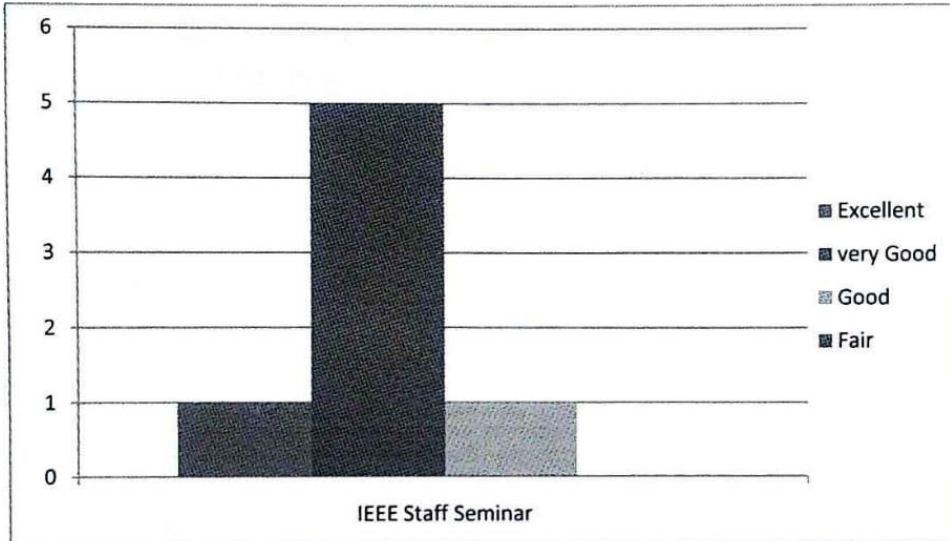
References:

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[3] Jianping Xie1, Xiaohong Kong2*, Xiaoyan Huang1, Qingjie Yang2 ., Application of Self-adaptive Fuzzy PI Control in the Air-conditioning System 6th International Conf. on Electrical and Electronics Engineering, Bursa, Turkey, 425-432, 2019.

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[5] W.L. Sun. Study on the heating system control (In Chinese). (MS., North China Electric Power University, China), pp. 20-29, 2003.

Faculty In-Charge 28/4/22   **HOD/EEE** 28/4/22   **Principal** 28/4/22