



# Microcontroller-Based Temperature Monitoring and Control

By Dogan Ibrahim

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## Microcontroller-Based Temperature Monitoring and Control By Dogan Ibrahim

Microcontroller-Based Temperature Monitoring and Control is an essential and practical guide for all engineers involved in the use of microcontrollers in measurement and control systems. The book provides design principles and application case studies backed up with sufficient control theory and electronics to develop your own systems. It will also prove invaluable for students and experimenters seeking real-world project work involving the use of a microcontroller.

Techniques for the application of microcontroller-based control systems are backed up with the basic theory and mathematics used in these designs, and various digital control techniques are discussed with reference to digital sample theory.

The first part of the book covers temperature sensors and their use in measurement, and includes the latest non-invasive and digital sensor types. The second part covers sampling procedures, control systems and the application of digital control algorithms using a microcontroller. The final chapter describes a complete microcontroller-based temperature control system, including a full software listing for the programming of the controller.

\*Provides practical guidance and essential theory making it ideal for engineers facing a design challenge or students devising a project

\*Includes real-world design guides for implementing a microcontroller-based control systems

\*Requires only basic mathematical and engineering background as the use of microcontrollers is introduced from first principles

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### **Editorial Review**

From the Back Cover

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Engineers involved in the use of microcontrollers in measurement and control systems will find this book an essential practical guide, providing design principles and application case studies backed up with sufficient control theory and electronics to develop their own systems.

It will also prove invaluable for students and experimenters seeking real-world project work involving the use of a microcontroller.

Unlike the many introductory books on microcontrollers Dogan Ibrahim has used his engineering experience to write a book based on real-world applications.

A basic mathematical and engineering background is assumed, but the use of microcontrollers is introduced from first principles.

Microcontroller-Based Temperature Monitoring and Control is an essential and practical guide for all engineers involved in the use of microcontrollers in measurement and control systems. The book provides design principles and application case studies backed up with sufficient control theory and electronics to develop your own systems. It will also prove invaluable for students and experimenters seeking real-world project work involving the use of a microcontroller.

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### **About the Author**

Prof Dogan Ibrahim graduated from the University of Salford with First Class Honours in Electronic Engineering. He then completed an MSc course in Automatic Control Engineering at the University of Manchester, and PhD in Digital Signal Processing at the City University in London. Prof Ibrahim worked at several companies before returning to the academic life. He is currently a lecturer at the Department of Computer Information Systems at the Near East University. Prof Ibrahim is a Fellow of the IET, and a Chartered Electrical Engineer. His interests are in the fields of microcontroller based automatic control, digital signal processing, and computer aided design. Dogan Ibrahim has been Associate Professor and Head of Department at the Near East University, Cyprus, lecturer at South Bank University, London, Principal Research Engineer at GEC Hirst Research Centre, and is now a hardware and software systems consultant to

London's Traffic Control Systems Unit.

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