VISVESVARAYA TECHNOLOGICAL UNIVERSITY,

BELAGAVI – 590 018

Assignment report on

Temperature Dependent DC Fan

Submitted as Subject assignment for microcontroller and embedded System (21CS43)

BY

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CERTIFICATE

This is to certify that, assignment work for the subject "Microcontroller and embedded system" has been successfully completed and report submitted by ABHIRAM A GOWDA bearing USN 4AL21CS003 during the academic year 2022–2023. It is certified that all corrections/suggestions indicated presentation session have been incorporated in the report and score 9 Marks out of 10 and deposited in the departmental library.

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Temperature dependent DC fan

ABSTRACT:

This report presents the design, implementation, and evaluation of a temperature-dependent DC fan control system utilizing the Arduino microcontroller platform. In today's world, efficient thermal management is crucial for various applications, including electronics, industrial processes, and renewable energy systems. The ability to control fan speed based on temperature variations is essential for maintaining optimal operating conditions and preventing overheating.

The project's main objective was to develop an intelligent and cost-effective solution for temperature-dependent fan control. The system utilizes an Arduino microcontroller, which provides a flexible and user-friendly platform for programming and interfacing with various sensors and devices. A temperature sensor (such as a thermistor or DS18B20) was employed to measure the ambient temperature accurately.

The control algorithm implemented on the Arduino continuously monitors the temperature readings from the sensor. When the temperature exceeds a predefined threshold, the DC fan is activated with an appropriate speed level to dissipate excess heat. As the temperature decreases, the fan speed is adjusted to maintain the desired temperature range.

Introduction

Project Overview:

The DC Temperature Controlled Fan project involves designing a system to regulate the speed of a DC fan based on the surrounding temperature. This concept finds applications in various domains, including electronics cooling, industrial automation, and energy conservation.

Objectives:

The primary objectives of this project are:

- To design and implement a temperature-controlled fan system.
- To develop a responsive and accurate temperature sensing mechanism.
- To create a control algorithm that adjusts fan speed according to temperature variations.
- To evaluate the system's performance, efficiency, and practicality.

Significance

The project contributes to energy efficiency by enabling the fan to operate only when necessary, reducing power consumption. It also showcases the integration of sensors and microcontrollers for real-world applications.

Components and Materials:

- The project requires the following components:

Arduino Uno: The Arduino Uno is a popular microcontroller board that is widely used for creating various electronics projects and prototypes.