

# Performance evaluation of various distance metrics in agglomerative clustering

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**Abstract**—This paper presents an accessible approach to an efficient, intelligent, Internet of Things (IoT) enabled thermostat to be used instead of the usual, naive thermostats that are currently on the market. The current means by which most of the population control their house temperature is to use a simple, straight-forward thermostat that is simply reactive to only the temperature it records and the temperature set point of the user. The goal is to show that with the current technologies we have at hand, we can build a thermostat that is accessible through the infrastructure that the Internet provides and that can adapt in an intelligent manner condensing more than just the temperature error. With the advent of new, affordable technologies, the possibility of building such a device has rocketed and with the advent of the new ESP8266 wireless module, making a IoT enabled device became suddenly an appealing and obvious option. The anticipated outcome of this approach is to create a new kind of thermostat that is first of all affordable, making the most of the new technologies we have, and intelligent, giving the user an improved experience and greater energy management control.

I. INTRODUCTION

II. MOTIVATION

III. RELATED WORK

IV. THEORETICAL BACKGROUND

V. METHODOLOGY

VI. EXPERIMENTS

VII. CONCLUSION