# AUTOMATIC HUMIDIFIER FOR MEDICAL PURPOSE

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# ABSTRACT

This development of  Arduino microcontroller-based automated humidification system designed for medicinal applications has one of its primary goal of  solving the issue of preserving ideal humidity levels in medical environments to improve patient comfort and promote the healing process. The technique comprises integrating very accurate sensors to detect temperature and humidity, analyzing data on the Arduino Microcontroller, and operating the humidifier as necessary. The device includes alerts for high humidity levels and a fail-safe mechanism to guarantee patient safety. The system's ability to maintain a precise and constant humidity range in medical situations is shown by the simulation results. The Arduino Microcontroller's integration offers effective and precise control, making the system trustworthy for healthcare practitioners. The importance of this work lies in its contribution to raising the standard of care by offering an accurate and automated method of humidity control. The automated humidifier improves patient comfort while lowering operating expenses. It also offers the potential for future growth through interaction with other medical equipment and remote monitoring

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# INTRODUCTION

## 1.1    Research Background

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## 1.2    Problem Statement

Precise humidity control is essential for patient comfort, healing, and the efficiency of medical treatments and equipment in healthcare settings. Inadequate humidity control systems can result in less-than-ideal conditions, which can impede the healing process and foster the growth of pathogenic bacteria. The integrity of medications may also be jeopardized by inadequate humidity management, which could have an effect on the general standard of healthcare services. The dearth of a sophisticated, automated system to reliably control humidity levels in healthcare facilities emphasizes how urgently we need a system that can handle the unique problems this setting presents.

There are a number of disadvantages to using traditional manual humidifier control methods in healthcare environments. Relying too much on manual adjustments can cause inconsistent humidity management, which could cause patient discomfort and possibly interfere with medical treatments. Manual control systems have inherent limitations, including human error, slow response times to changing conditions, and slowness in responding quickly to abrupt changes in humidity requirements. Due to these methods'