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Implementation of Traditional Fan

Akshay.C[1], Archana.GM[2], Ashcharya.NB[3], Harini.L[4], Dr.B Sudarshan[5]

Dept of Electronics and Communication Engineering, K S Institute of Technology, Bangalore, India[1-4]

Professor, Department of Electronics and Communication Engineering, K S Institute of Technology, Bangalore, India[5]

Abstract: This research explores the transition from traditional fan to manual and automatic electronically sweeping fan. This electronic control has revolutionized fan operation, convenience, energy efficiency, and functionality. This paper examines the technological advancements enabling electronic fan control for traditional fans and smart phone integration. By comparing traditional methods with electronic control system, this abstract highlights the evolution and benefits of electronically sweeping fan, paving the way for innovations in household appliances.

Keywords: electical, fan,speed,

I. INTRODUCTION

The full form of fan is “Fan Airflow Network”.
A fan is a electrical device that is used to create the airflow by rotating its blades.

There are 3 main types of fan used for moving air:

1. Axial
2. Centrifugal (radial)
3. Cross flow (tangential)

Axial fan : these type have blades that rotate around an axis. Similar to an airplane propller.

Centrifugal fan : these hans have blades that rotate around an axis perpendicular to the airflow direction. They are used for generating high pressure airflow at lower volumes.

Tangential fan: they are same as radial ones , they create a wider, more laminar flow of air across a larger area. Most used in air curtains.

In this paper the fan is integrated with traditional mechanical design with electronics.Traditional fans are operated solely through electronic control offering the users a blend of simplicity and functionality.

II. LITERATURE REVIEW

The methodology of [1] involves creating biophysical models that simulate human thermo regulation and heat exchange processes. This could include models of heat transfer through convection , radiation, and evaporation.

Testing the accuracy of it. Running the simulations using the devloped models to predict the impact of electrical fan use on human thermal comfort and physiological responces under various environmental conditions.

Result:
Analysis of how electric fans impact body temperature and perceived comfort in various hot weather conditions.
Evaluation of the energy consumption associated with using electric fans compared to other cooling methods like air conditioning.
Insights into the physiological mechanisms by which fans affect heat dissipation and thermal comfort.

Discussion and conclusion:
It's important to note that while electric fans are beneficial for personal comfort, they do not lower air temperature like air conditioning units do. Therefore, their effectiveness depends on individual preferences and environmental conditions. Researchers often recommend using fans in conjunction with other cooling strategies for optimal comfort and energy efficiency.

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Drawback:
fans are very noisy so that we can't use it in office or while sleeping or concentration.
The methodology of [2] involves physical and virtual prototypes of the new designs to evaluate their performance and functionality by simulation.

Comparing the existing indoor ceiling fan designs against industry standards or competitors products to identify areas for improvement.

Result:
comparision is done for the efficiency, speed ,conditions and mechanisms for the different types of fan physically.

Discussions and Conclusions:
This paper concludes that different types of fans hasdifferent types of specifications and different fanshas different models and prototype.

Drawbacks:
this document doesn not explicitly mention any drawbacks or limitations of the proposed methodoly or results.

The methodology [3] involvessetup which is used to conduct the experiments, including details such as the types of pedestal and table fans tested , their specifications and the testing environment including the positions and orientation of the fan , the distances at which measurements were taken , and any variations in testing conditions.

Result:
measurement of the volume of air moved by the fans, typically in cubic feet per minute (CFM) or cubic meters per hour. Power consumed is in watts. Comparision between pedestal and table fans , including factors like oscillations capability, stabitity, and durability.

Discussions and Conclusions:
it could highlight factors such as fan blade design, motor efficiency, and structural differences that influence fan performance.

Drawback:
it is limited in the duration of their experiments, preventing long – term assessments of fan performance or reliability over extended periods.

The study [4] involvesthe comparison of different cooling fan designs for electric motors, focusing on improving efficiency through axial fan designs and the innovative concept of a flexible-blade axial fan for variable-speed motors.

Results:
The study showcased that the comparision is done for the efficiency, speed , type it rotates ,conditions and mechanisms for the different types of fan physically.

Discussions and Conclusions:
how different fan designs affect cooling performance. The authors would compare data on airflow rates, temperature reductions, and heat dissipation efficiencies across various fan types. Discuss how their findings apply to real-world scenarios. This includes considerations for choosing fan designs based on specific motor

Drawback:
The need for more research on the comparison of axial and centrifugal fan designs for electric motors, specifically focusing on efficiency gains, reduced acoustic noise, and the potential for cost-effective mass production of innovative fan designs.

III. PROPOSED WORK

To create a traditional fan control system using a servo motor with Arduino, pushbuttons, and an HC-05 Bluetooth module, start by connecting the servo motor to an Arduino PWM pin and setting up pushbuttons for input. Program the Arduino to interpret button presses to control the servo motor's position, mimicking fan speed settings. Integrate the HC-05 module to enable wireless communication, allowing Bluetooth from a smartphone. Ensure the system is calibrated for smooth servo motor operation and responsive user interaction, providing a versatile and user-friendly fan control solution.

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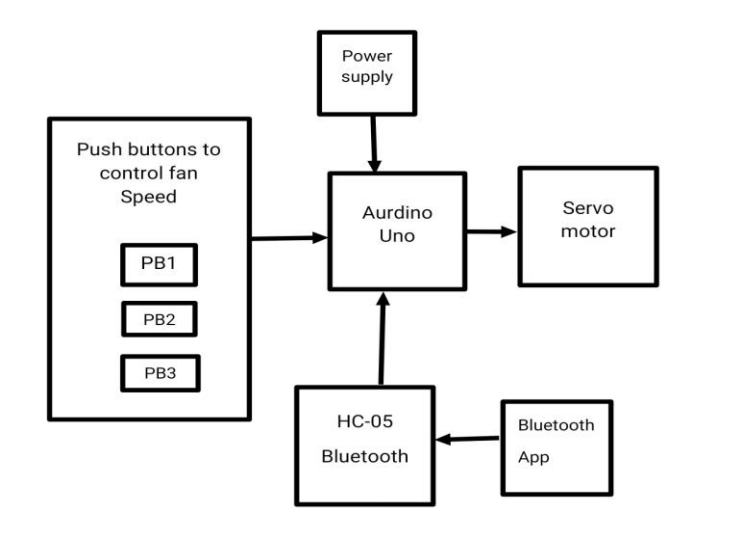
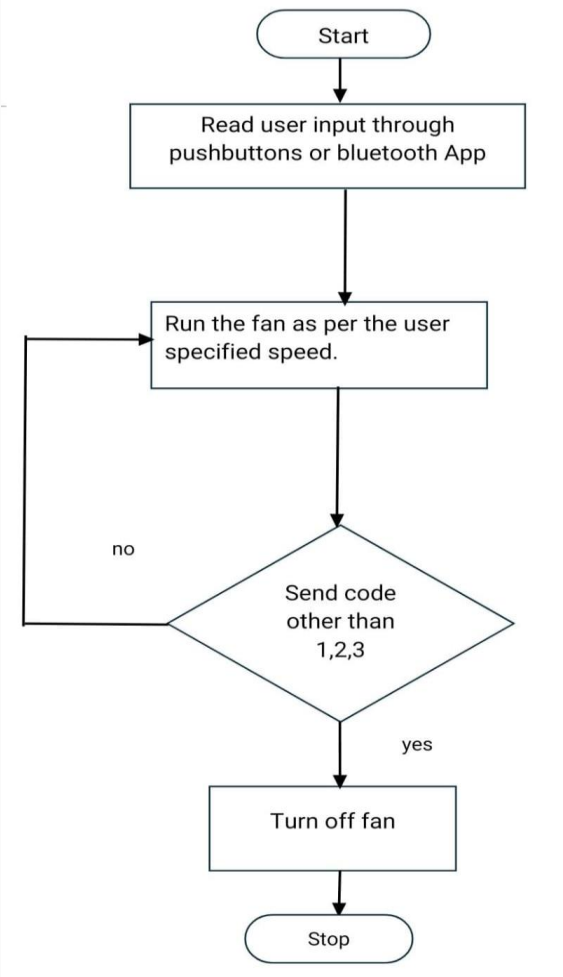
IV. METHODOLOGY

Block diagram



Flow chart:



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V. RESULTS

https://photos.app.goo.gl/WjpV6Knzee1DXxa16

PB value	Bluetooth app value	Servomotor angle	Fan speed
1	1	0-180°and 180-0°	Full
2	2	0-120° and 120°-0°	Medium
3	3	0-90° and 90-0°	Low
	Any other value	No rotation	Stop

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VI. CONCLUSION AND FUTURESCOPE

In conclusion, the project of a traditional fan controlled by both pushbuttons and Bluetooth showcase a successful integration of conventional technology with modern electronic controles. the dual control mechanisms offer versatility and user convenience allowing the fan to be operated manually or remotely via Bluetooth. this combination enhances usability and functionality, providing a partical solution that aligns with contemporary smart home trends. the projects demonstrates how tradional appliances can be upgraded with innovative technology, making them more adatable to users needs and preferences.

Future improvements could explore additional smart features and further integration with other home atumation systems.

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