International Journal of Scientific Research in Engineering and Management (IJSREM)
Volume: 08 Issue: 05 | May - 2024 SJIF Rating: 8.448 ISSN: 2582-3930

NIKKY THE HUMANOID ROBOT FOR HEALTHY AND SAFETY LIVING

HARIKRISHNAN T B[1], LESLIN SHAJU [2], SHABIR IBRAHIM K B [3], SNEHA JOB[4], NEGMA IQBAL[5]

[1]HARIKRISHNAN T B EEE & IES COLLEGE OF ENGINEERING
[2]LESLIN SHAJU EEE & IES COLLEGE OF ENGINEERING
[3]SHABIR IBRAHIM K B EEE & IES COLLEGE OF ENGINEERING
[4]SNEHA JOB EEE & IES COLLEGE OF ENGINEERING
[5]NEGMA IQBAL EEE & IES COLLEGE OF ENGINEERING

Abstract – As the global population ages, the demand for effective elderly care solutions has become increasingly urgent. With advancements in technology, there arises an opportunity to revolutionize the way we approach elderly care, moving beyond traditional models towards more innovative and integrated approaches. This project introduces an integrated smart home automation system designed to enhance the well-being and independence of seniors while providing invaluable support to caregivers. Leveraging cutting-edge technologies such as AI integration, IoT devices, and voice recognition, the system offers a seamless and intuitive user experience. Features include automated task management, real-time environmental monitoring, medication management, and emergency response capabilities. By streamlining daily routines, promoting social engagement, and ensuring safety, the system aims to improve the overall quality of life for seniors while alleviating stress and burden for caregivers. Additionally, this project explores the potential of humanoid robot technology, exemplified by robot Nikky, to further augment elderly care through human-like interactions and assistance. This integrated approach not only addresses physical needs but also focuses on cognitive stimulation and emotional well-being, fostering a sense of companionship and purpose for seniors. Through these efforts, this project seeks to address the evolving needs of aging populations and contribute to the advancement of technology-driven solutions in elderly care and support services.

Key Words: Home automation, Robotics, Smart and healthy living, Humanoid Robot for personal interaction

1.INTRODUCTION

Nikky is a state-of-the-art humanoid robot designed to offer intelligent assistance and companionship, especially in elderly care settings. It has a sleek, modern design and uses advanced sensors like cameras, microphones, and touch sensors to navigate environments, recognize faces, and respond to voice commands and gestures. What sets Nikky apart is its AI capabilities, allowing it to learn and adapt to user needs over time. This personalized approach makes Nikky versatile, assisting with tasks like medication reminders, meal preparation, and household chores while also providing emotional support through conversations, games, and encouragement. Its combination of advanced technology and human-like interactions makes Nikky a significant innovation in elderly care, with the potential to improve the quality of life for seniors and others in need of assistance.

2. SCOPE

The future of home automation systems with personal identification offers a wide range of possibilities, driven by technology advancements and evolving societal needs. As systems become more personalized, they can adjust to individual user preferences, and context-aware automation emerges as a significant trend. These systems adapt to various factors like time of day, weather conditions, or calendar events, creating a more seamless and efficient smart home experience.

The integration of home automation with smart cities presents an opportunity for homes to be part of a broader ecosystem. This interconnectedness could enable appliances and devices to communicate with city infrastructure, allowing for energy redistribution during peak hours and coordination with public safety networks. This level of integration enhances efficiency and sustainability. Wearable technology is another promising area for home automation. Wearables can offer unique personal identification methods, like heart rate monitoring or specific gestures, adding an extra layer of security and personalization. They can also interact with home automation systems to trigger specific actions, such as unlocking doors or adjusting the environment based on biometric data. Remote monitoring and telepresence are expected to play a significant role in the future of home automation. Improved network speeds and reduced latency will allow homeowners to interact with their home systems from anywhere, receiving live updates and controlling devices remotely. This is especially useful for security and elderly care, enabling constant monitoring and rapid response in emergencies.

Finally, advancements in artificial intelligence and machine learning will lead to smarter, more adaptable automation systems. These technologies can learn from user behavior and preferences, allowing the automation systems to improve their responses and offer a more tailored experience.

3.METHEDOLOGY AND WORKING

The methodology for creating Nikky, a humanoid robot, involves integrating robotics, health monitoring, and home automation to offer personalized assistance. The project starts with research and concept development to understand existing technologies and define the project's scope and objectives. The system design phase follows, where the robot's physical structure and software architecture are established, focusing on a humanoid form for natural interactions and modularity for scalability. Hardware integration is a crucial step, involving the selection of appropriate components, including Node MCU for its IoT capabilities, along with various sensors and actuators to enable health monitoring, environmental awareness, and other interactive features. Once the hardware is assembled, the software development focuses on creating algorithms and functionalities that allow Nikky to perform tasks like real-time health monitoring, voice recognition, and automation control. The integration of these hardware and software components leads to a robot that can assist with daily tasks, promote safety, and provide companionship, ultimately contributing to a more user-friendly and adaptable healthcare experience

3. BLOCK DIAGRAM

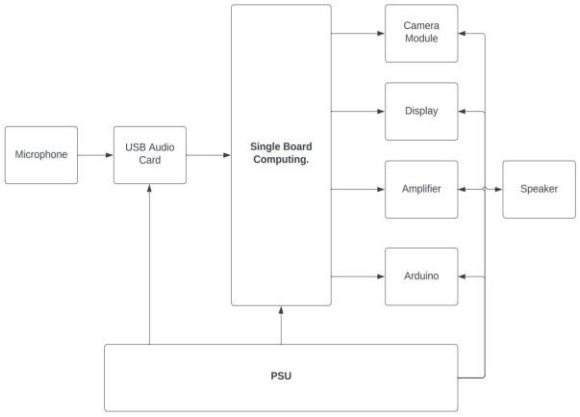

Fig -1: Block Diagram

4. CIRCUIT DIAGRAM

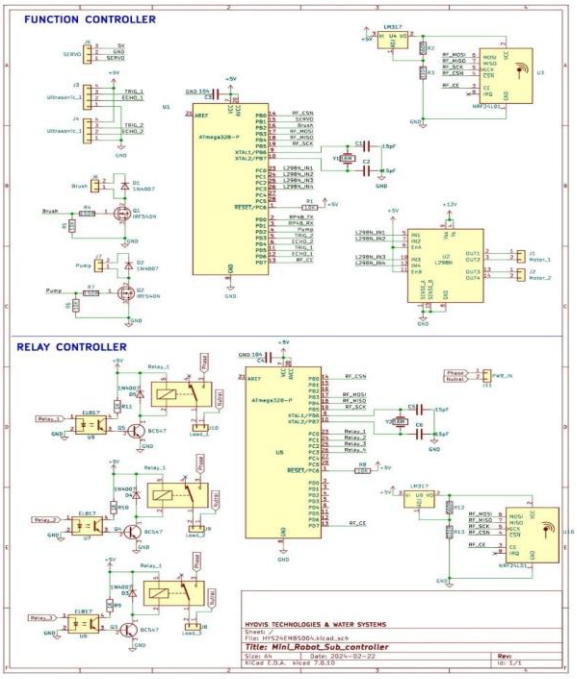

Fig -2: Circuit Diagram

3. CONCLUSIONS

In conclusion, the development and testing of the solar-powered grass cutter have proven its feasibility and effectiveness as a sustainable alternative to traditional petrol-powered models. Incorporating solar panels, a battery bank, and an electric motor, the system enables efficient grass cutting while minimizing environmental impact. Performance evaluation revealed promising results, with effective operation in various conditions and satisfactory solar energy conversion. The significant economic and environmental benefits include reduced reliance on fossil fuels, emissions, and long-term cost savings, making it a viable investment for farmers and gardeners. Further optimization of its design and components could enhance performance and efficiency. Expanding solar power in agricultural equipment could yield broader sustainability benefits. Overall, the solar grass cutter represents a promising step towards sustainable agriculture practices.

ACKNOWLEDGEMENT

The author acknowledges the support of Dr, John Chembukavu, Head of the EEE Department IES College of Engineering , Ms. Negna Iqbal Assistant Professor at IES College of Engineering.

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