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17.4.4 SUSTAINABILITY LITERACY

Sustainability literacy refers to the knowledge, skills, attitudes, and values that individuals need to contribute to sustainable development. It goes beyond awareness, encompassing a deeper understanding of environmental, economic, and social dimensions of sustainability, and the ability to apply this understanding to make responsible decisions.

In the context of **Indicator 17.4.4** within the framework of the United Nations Sustainable Development Goals (SDGs), sustainability literacy is often evaluated to determine the extent to which individuals—particularly students and future leaders—are equipped with the necessary competencies to address global sustainability challenges.

Here are some components of sustainability literacy as it relates to this indicator:

1. **Understanding of Key Issues**: Awareness of global challenges such as climate change, biodiversity loss, resource scarcity, inequality, and pollution.
2. **Systems Thinking**: Recognizing the interconnectedness of environmental, social, and economic systems, and understanding how actions in one area impact others.
3. **Critical Thinking and Problem Solving**: Ability to assess complex problems, evaluate solutions, and consider long-term impacts.
4. **Ethical and Responsible Decision-Making**: Making choices that prioritize the well-being of the planet and future generations.
5. **Engagement and Action**: Motivation to participate in initiatives that promote sustainability at individual, community, and global levels.

Sustainability literacy is increasingly seen as a critical part of education at all levels. Many universities, institutions, and organizations are implementing programs to improve sustainability literacy, aiming to empower people to contribute effectively to sustainable development and meet the broader goals of the SDGs.

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DESIGN AND FABRICATION OF HELIOMOVER

A MINI PROJECT REPORT

Submitted by

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VENKATESH R **(727722EUMT124)**
VISHNU DEV K S **(727722EUMT130)**

in partial fulfillment for the award of the degree of

BACHELOR OF ENGINEERING

IN

MECHATRONICS ENGINEERING

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NOVEMBER 2024

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SUSTAINABLE DEVELOPMENT GOALS

The Sustainable Development Goals are a collection of 17 global goals designed to blue print to achieve a better and more sustainable future for all. The SDGs, set in 2015 by the United Nations General Assembly and intended to be achieved by the year 2030, In 2015, 195 nations agreed as a blue print that they can change the world for the better. The project is based on one of the 17 goals.

Questions	Answer
Which SDGs does the project directly address?	SDG 9: Industry, Innovation, and Infrastructure SDG 11: Sustainable Cities and Communities
What strategies or actions are being implemented to achieve these goals?	SDG 7 - Investing in renewable energy technologies SDG 13- Setting Carbon reduction targets
How is progress measured and reported in relation to the SDGs?	Ridership Growth, Reduction in Operational Costs
How were these goals identified as relevant to the project's objectives?	The project's objectives, focused on improving the efficiency and functionality of solar panels, were aligned with SDGs during the planning phase.
Are there any partnerships or collaborations in place to enhance this impact?	No, there is no partnership

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BONAFIDE CERTIFICATE

Certified that this Industrial project report **"DESIGN AND FABRICATION OF HELIOMOVER "** is the bonafide work of **"RIJU VIJAY (727722EUMT087), SANS BATSHA S (727722EUMT097), VENKATESH R (727722EUMT124) , VISHNU DEV K S (727722EUMT130)"** who carried out the project work under my supervision.

14/11/2024

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INTERNAL EXAMINER

14/11

EXTERNAL EXAMINER

ACKNOWLEDGEMENT

At this juncture, we take the opportunity to convey our sincere thanks and gratitude to the management of the college for providing all the facilities to us.

We wish to convey our gratitude to our college Principal, for supporting us to do our project and offering adequate duration to complete our project.

We would like to express our grateful thanks to **Dr. M. Lydia Edwin**, Head of the Department, Department of Mechatronics engineering for her encouragement and valuable guidance on this project.

We extend my gratitude to our beloved guide **Dr.L.Feroz Ali**, Assistant professor, Department of Mechatronics engineering for her constant support and immense help at all stages of the project.

ABSTRACT

This report presents the design and implementation of an automatic solar tracker integrated with a mobile rover, aimed at enhancing solar energy collection efficiency. Traditional solar panels, while effective, often suffer from fixed positioning that limits their ability to capture maximum sunlight throughout the day. By employing a solar tracker that dynamically adjusts the panel orientation in real-time, energy absorption can be significantly improved.

The project utilizes a microcontroller to process inputs from light sensors that detect sunlight intensity from various angles. Servo motors are employed to adjust the solar panels' tilt and rotation, ensuring optimal alignment with the sun's position as it traverses the sky. In conjunction with the solar tracker, a mobile rover is designed to relocate the tracking system based on varying environmental conditions or energy demands. The rover features a robust chassis equipped with motors for movement and a GPS module for navigation. This mobility allows the solar tracker to be repositioned as necessary, ensuring that it consistently operates in areas with the highest sunlight exposure.

One of the primary advantages of this system is its potential for off-grid applications, providing sustainable energy solutions in remote areas. The ability to move and track the sun effectively can lead to significant increases in solar energy yield, contributing to greater energy independence and sustainability.

In conclusion, the automatic solar tracker with a moving rover presents a promising advancement in solar technology. This project underscores the importance of adaptability in renewable energy systems, showcasing how combining automation and mobility can lead to enhanced performance and energy efficiency. Future developments may explore advanced tracking algorithms and alternative power sources for the rover, paving the way for even more effective solar energy solution.

DESIGN AND FABRICATION OF AUTONOMOUS ROBOT FOR MEDI SERVING

A MINI PROJECT REPORT

Submitted by

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Questions	Answer Samples
Which SDGs does the project directly address?	SDG 3 –Good wealth and health being.
What strategies or actions are being implemented to achieve these goals?	Using IR Sensors and RFID Reader to automate the process.
How is progress measured and reported in relation to the SDGs?	Identifying Patients name and the obstacle detection.
How were these goals identified as relevant to the project's objectives?	Alligns with goals for Hospitals
Are there any partnerships or collaborations in place to enhance this impact?	Idea Collabration with Department of Science and Technology, India

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BONAFIDE CERTIFICATE

Certified that this project report " **DESIGN AND FABRICATION OF AUTONOMOUS ROBOT FOR MEDI SERVING** " is the bonafide work of "**RAGHUL Y (727723EUMT513), SOORIYAN P (727723EUMT515), VASANTHA KUMAR B(727723EUMT517), VIKAS K (727723EUMT518)** " who carried out the project work under my supervision.

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INTERNAL EXAMINER

EXTERNAL EXAMINER

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We extend my gratitude to our beloved guide Mr. M. Vigneshwaran ME (Ph.D.), Assistant Professor, Department of Mechatronics Engineering for her constant support and immense help at all stages of the project.

ABSTRACT

The project demonstrates an Autonomous robot for Medicine serving, which Serves medicine to the patient room with the help of an RFID reader to deliver the medicine. The main purpose of the robot is to avoid spreading infectious diseases while serving a medicines to individual patients room.

The methodology involves the medicines being loaded into the main dispenser and then a Robot moving through the path. When it reaches its Destination using the IR sensor and the Ultrasonic sensor, the patients have an RFID tag shown in the front of the Robot to detect the Patient's name. The robot dispatches the medicines in the dispenser to the hopper, and then the Patients can get the medicines in a tray. The interfacing of the RFID Reader, IR sensor, and ultrasonic sensor to the Arduino Nano controls the 12V DC motor with L298N Motor driver and the Servo motor with PWM Servo driver.

The outcome of this Robot is to ensure the safety of the nurses to protect them from disease and then serve medicine at a proper schedule and accurate medicine delivery. This robot will improve the efficiency and the existing hospital infrastructure to improve the environment of the hospital and improve efficiency and patient care. The robot ensures that the timely delivered the medicines while navigating the hospital environment safely to operate and when an obstacle is detected it will change its path and continue its operation and continuously deliver to the medicine.

Keywords: RFID Reader, Medicine Delivery , Arduino Nano, Ultrasonic Sensor and IR Sensor