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| **Title:** | An Arduino Based Automated Gardening System for Efficient and Sustainable Plant Growth | | | |
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| **Published Journal Name:** | International Research Journal of Modernization in Engineering Technology and Science (IRJMETS) | | | |
| **Type of Publication:** | Journal | | | |
| **Volume:** | 6 | Issue | | 2 |
| **Publisher:** | International Research Journal of Modernization in Engineering Technology and Science | | | |
| **Publication Date:** | 11th February 2024 | | | |
| **ISSN:** | 2582-5208 | | | |
| **DOI:** | https://www.doi.org/10.56726/IRJMETS49294 | | | |
| **URL:** | https://www.irjmets.com/uploadedfiles/paper//issue\_2\_february\_2024/49294/final/fin\_irjmets1707590054.pdf | | | |
| **Other Related Info.:** | Page 571-577 | | | |
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| **Abstract:** | | |  | |
| The primary objective of this research is to create and execute an automated gardening solution that promotes effective and environmentally friendly plant growth. This addresses the pressing issues of climate change and urban development. The setup involves utilizing an Arduino Nano microcontroller, a soil moisture sensor, a relay module, and a water pump. These components work together to supervise and regulate the optimal soil moisture levels for healthy plant growth. The experimental setup effectively demonstrated the system's competence in consistently watering plants and fostering their well-being while being mindful of water conservation and efficient resource usage. The key findings highlight the system's capability to maintain ideal growth conditions, minimize water consumption, and encourage sustainable gardening practices. The analysis indicates that automated gardening systems have the potential to revolutionize agriculture, especially when coupled with advancements in artificial intelligence and machine learning. As these technologies continue to improve, they will enhance the efficiency and adaptability of such systems. It is crucial to undertake efforts that enhance education and raise awareness to fully utilize the potential of these systems and promote sustainable agricultural. | | | | |