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AI Based Seeding and Planting Robot

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Abstract: *The "AI-Based Seeding Robot" project represents a groundbreaking solution to address contemporary challenges in agriculture, combining advanced technology, artificial intelligence, and robotics for sustainable and efficient food production. The project incorporates two distinctive modes, "Planting" and "Replanting," offering precision and adaptability to modern farming needs. In "Planting" mode, the robot autonomously plants seeds with precision-defined distances, streamlining the entire process. The innovative "Replanting" mode utilizes AI to identify existing plants, enabling intelligent decision-making to fill potential gaps during reseeding. Key components include the Arduino microcontroller, motor control real module, IR sensors for distance calculation, and the Raspberry Pi 4B+ for deploying AI modules and plant detection. The integration of a camera module enhances the system's capabilities, enabling real-time data capture for informed decision-making in agricultural practices.*

Keywords: Seeding Robot, Agriculture, Robotic, Sustainable Food Production, Arduino, Raspberry Pi

BIBLIOGRAPHY

[1]. M.R. Pundkar, A.K. Mahalle, A seed sowing machine: A review, Int. J. Eng. Soc.Sci. 3 (3) (2015).
[2]. J. Khosravi, M.A. Asoodar, M.R. Alizadeh, M.H. Peyman, Application of multiple criteria decision making system compensatory (TOPSIS) in selecting of rice milling system, World Appl. Sci. J. 13 (11) (2011) 2306–2311.
[3]. P.P. Shelke, Frontline demonstration on bullock-drawn planter enhances yield of soybean crop, Int. J. Farm Sci. 1 (2) (2011) 123–128.
[4]. B. Ramesh, T.C.N.A.M. Sara, A.V. Satyam. Automated Agricultural System for Multipurpose Activities of Farmers. Int. J. Recent Innov. Trends Comput. Commun. 5(12), 171-175.
[5]. S. Umarkar, A. Karwankar (2016, April). Automated seed sowing agribot using arduino. In 2016 International Conference on Communication and Signal Processing (ICCSP) (pp. 1379-1383). IEEE.
[6]. M.V. Gowrishankar, K. Venkatachalam, IoT based precision agriculture using Agribot, GRD J. 3 (5) (2018).
[7]. K. Karthikeyam, S.S. Sundar, C.S. Subramaniam, P.S. Sivakumar, (2017, April). Design and development of a multi-utility agricultural vehicle. In 2017 IEEE Technological Innovations in ICT for Agriculture and Rural Development (TIAR) (pp. 109-111). IEEE.
[8]. P.V. Bute, S. Deshmukh, G. Rai, C. Patil, V. Deshmukh, (2018). Design and Fabrication of Multipurpose Agro System.
[9]. S.H. Sazal. (2014). FABRICATION AND DEVELOPMENT OF AUTOMATIC SEED SOWING MACHINE. Education, 2018.
[10]. M.U. Hassan, M. Ullah, J. Iqbal, (2016, November). Towards autonomy in agriculture: Design and prototyping of a robotic vehicle with seed selector. In 2016 2nd International Conference on Robotics and Artificial Intelligence (ICRAI) (pp. 37-44). IEEE.