The scale **Journal Website:** https://thescalejournal.com.ng/
An Interdisciplinary Journal of
The ACADEMIC STAFF UNION OF POLYTECHNICS - ZONE D
ISSN: 2992-3727 Published 25th May, 2025

TWO WHEEL ROBOT FOR TRACKING MEDICINE LOCATION FOR ELDERLY

Umar Adam Isah [1]; Shaibu Zulkifinu Bako [2]; Musah Sufuyan Elvis [3]; Momodu Lawal Usman [4]; Omoakhalen Abdurrahman Ismail [5]; Sado-Alimikhena Elizabeth [6]; Oshawo Eugene Igbadumhe [7]
[1,5]Mechatronics Engineering Technology, Auchi Polytechnic, Auchi
[2,7]Mechanical Engineering Technology, Auchi Polytechnic, Auchi
[3,4] Electronics Engineering Technology, Auchi Polytechnic, Auchi
dawatiz2@yahoo.com, shaibubako@gmail.com, momodulawal@yahoo.com,
omoabdul01@auchipoly.edu.ng, alimasunyaelizabeth@gmail.com, geneosha@yahoo.com
+2348132583890

Abstract
This research focus on the design and development of two-wheel robot with controlled doppler radar sensing input to pick up patients' medicine. The device would be activated once a button is pressed by patients with stroke and other physical disabilities. The theory uses a rotary encoder and controller embedded with linear variable differential transformers sensor to generate impulse signal within a precise axis manipulation by the gripper. The closed system encodes and decodes medicine dosage calibration based on voice encrypted data entry and machine programming language. The microcontroller dispense medicine and activate the actuating system using haptic touch by the back-end user receiver to prompt the timing command. Every initiated set point minimizes unpredictable slump in patients that require intensive care. This research can be applied in field like pharmacy, biomedical engineering, mechatronics, and sorting assembly.
Keywords: Wheel, Robot, Tracking, Medicine, Elderly.

Introduction

Medical checkup is highly poor in an under develop and developing countries due to poor funding. Poor medicine compliance by patient is alarming among youth and elderly (Fu, 2024). This has sparked frequent slump rate within the ages of 39 years slightly, moderately in 25 years, extremely within 60-77 years and critical 80 and 90 years of age. This condition has to be addressed from specific and generic problems (Zang et al.,2019) due to poor multimedia explainable artificial intelligence. The generic problem is frequently related to poor diet and specific problems consist of bad lifestyle, stress and lack of exercises. This degenerates the active reflex action in organs, tissues and cell generation in human as they get aged (Xia et al., 2018). The essence of this research is to use adaptive self-matching logic and dataset with encrypted voice analytics file (Yacchirema et al., 2019.) to execute certain signal coverage in closed loop system feedback (Yang & Tian, 2017.) in wheel robot to enhance care for the disable patients and elderly ones in our homes after retirement in service.

Material and Method

A square of 1.5mm size and 0.05mm thickness of an aluminum microchip was reinforced to ease human machine interface interaction. The packed transparent empty bottle and colorless syrup (Wu et al., 2024.) bottle was used to train the deep learning models. This will enable easy passage of light beam without affecting the medicine concentration (Willy, 2018) in some stored packaged medicines. Once the medicine is picked the load cells trigger the gripper to send optic signal images and classify the object using color and weight (Uddi, 2019) sorting approach. Immediately, electromagnetic wave is created when sensation of touch by the haptic system is felt. An open-source library (Thompson, 2019.) with robotic notation using linear, revolute and angular position tracking was used for thye data syntax. The two wheel robot prismatic movement logic modelling codes to map out the prediction rate.

ISSN: 2992-3727 Published 25th May, 2025

Df= s.d read -SGV
Regularized speed ɾ→ pxy*1.2-5m/s=ϴ↓
Insert x axis 7m/s<10m/s ɵ45
Plot xy z notation {w1, w2, w3……..w0 }
Autoencoder=Model tracking input neuron layers
Scaling Time Shifting t1, t2, t3…..tn {10s,2s,30s …180hrs}
Xy phasor Angle 30^0, 60^0…120^0
Model=Modulated Frequency (Ø)
Model.Add (LSTM) (1.20)
Model.Add (LSTM) (Dropout)*(6.30)
Model.Add (LSTM) (200)*(2.02) {Return 2.80 ,4.10 ,10.02}
Model.Compile (Optimize the xyz each and generate output responses.
Execute Command

Result and Discussion

The material thickness and light intensity is crucial to ease the tracking set for variety of items. To avoid alteration in state space and Carnot cycles permutation Marson rule block diagram reductions and cascaded function in existing prototypes should be reviewed (Tariq et al.,2019). Otherwise, desired response would fail to achieve pass band to form aliasing conditioned signal. A set of string and integer for the long short -term memory and gated recurrent network was selected at 100, dense 1 and neuron 50 (Sodhro et al., 2018) to create arithmetic statement for 10 seconds character performance. These datasets were evaluated with backward propagation layer neural network. The activation function was 60 with weight 3.12, weight 6.02, weight 2.04 and weight 1.70 to optimize the stable power function of 2.0 as decision making tree adaptation pattern. While, Matlab 2025 version would allow pattern recognition images to ease and locate medicines as the robot moves.

Conclusion

The two-wheel robot should be integrated with web 2.0 and telemetry for sensing when there is emergency and obstacles. Each execution precisely relies on real time and asynchronous feedback.

Recommendation

Each of these two wheels should be self-charge by conserved wheel motion energy inform of air to act as alternative to energy supply when battery capacitors and voltages usage dropped or fails.

References

Fu, Z., Zhao, T., & Finn. C.JA., (2024). Mobile ALOHA: Learning Bimanual Mobile Manipulation with Low-Cost Whole-Body Teleoperation; abs/2401.02117.

Sodhro, A.H, Chen, L., Sekhari, A., Ouzrout,Y., &Wu, W., (2018). Energy efficiency comparison between data rate control and transmission power control algorithms for wireless body sensor networks. IntJ Distrib Sens Netw 14(1):1550147717750030.

Thompson, W.R., (2017). Worldwide survey of fitness trends for 2018: the CREP edition. ACSM'sHealth Fitness J 21(6):10–19.

Tariq, M., Majeed, H., Beg, M.O, Khan, F.A, & Derhab, A., (2019). Accurate detection of sitting posture activities in a secure IoT based assisted living environment. Futur Gener Comput Syst 92(9):745–75.

Uddin, M.Z., (2019) A wearable sensor-based activity prediction system to facilitate edge computing in smart healthcare system. J Parallel Distrib Comput 123(44):46–53.

Wu, X.,(2024). Constructing agency of the elderly in the age of Al: Taking caring robot as an example. *Morality and Civilization*;**01**:43–52.

Willy, R.W., (2018). Innovations and pitfalls in the use of wearable devices in the prevention and rehabilitation of running related injuries. Phys Ther Sport 29(7):26–33.

Xia, M., Zhang, Y., & Zhang, C. (2018) . A TAM-based approach to explore the effect of online experience on destination image: a smartphone user's perspective. J Destin Mark Manag 8(5):259–270.

Yang, X., &Tian, Y., (2017). Super normal vector for human activity recognition with depth cameras. IEEETrans Pattern Anal Mach Intell 39(5):1028–1039.

Yacchirema, D., de Puga, J.S., Palau, C., & Esteve., M. (2019) Fall detection system for elderly people using IoT and ensemble machine learning algorithm. Pers Ubiquit Comput 10(5):1–17.

Zang, W., Miao, F., Gravina, R., Sun, F., Fortino, G., & Li, Y. (2019). CMDP-based intelligent transmission forwireless body area network in remote health monitoring. Neural Comput Appl 10(2):1–9.