Patent Search

Invention Title	A Context-Aware Autonomous Circular Announcement Robot with Dual-Layer Modular Architecture and Adaptive Interaction System
Publication Number	24/2026
Publication Date	12/06/2026
Publication Type	INA
Application Number	202641051821
Application Filing Date	23/04/2026
Priority Number	
Priority Country	
Priority Date	
Field Of Invention	ELECTRONICS
Classification (IPC)	G05D 1/02, B25J 9/16, G05D 1/00, B25J 11/00, B25J 13/08

Inventor

Name	Address	Country
Gajvalli Venkata Gnana Karthik	21-16-16 Vemuri Enclave C/R,madhura nagar, Vijayawada, Andhra Pradesh 520011, India	India
Dr. Sri Silpa Padmanabhuni	7-3-6/1, Raghavareddy Rd, Kothapet, Vijayawada, Andhra Pradesh 520001, India	India
Dr. S. Saravana Kumar	7-3-6/1, Raghavareddy Rd, Kothapet, Vijayawada, Andhra Pradesh 520001, India	India
Penugonda Bala Vijaya Durga	11-26-6, Uppulurivari Street, 1, Town, Vijayawada, Andhra Pradesh 520001, India	India
Dr. Venkata Maha Lakshmi N	Department of Computer Science & Engineering,Lakireddy Bali Reddy College of Engineering Mylavaram, Andhra Pradesh 521230, India	India
P.Surya Bharath	7-3-6/1, Raghavareddy Rd, Kothapet, Vijayawada, Andhra Pradesh 520001, India	India
Maddi Yagna Sree	Kowthavari street, poornanandem peta, Vijayawada Andhra Pradesh 520003, India	India
Adduri kavya Sri Harini	6-9-7A, Tailor pet,R C M School road,jodu bommala center , Vijayawada Andhra Pradesh 520001, India	India
Malleda Avanthi	1-4-223/1, RTC work shop road , Vijayawada, Andhra Pradesh 520012, India	India

Applicant

Name	Address	Country
Dr. Sri Silpa Padmanabhuni	7-3-6/1, Raghavareddy Rd, Kothapet, Vijayawada, Andhra Pradesh 520001, India	India
Dr. S. Saravana Kumar	7-3-6/1, Raghavareddy Rd, Kothapet, Vijayawada, Andhra Pradesh 520001, India	India
Penugonda Bala Vijaya Durga	11-26-6, Uppulurivari Street, 1, Town, Vijayawada, Andhra Pradesh 520001, India	India
Dr. Venkata Maha Lakshmi N	Department of Computer Science & Engineering,Lakireddy Bali Reddy College of Engineering Mylavaram, Andhra Pradesh 521230, India	India
P.Surya Bharath	7-3-6/1, Raghavareddy Rd, Kothapet, Vijayawada, Andhra Pradesh 520001, India	India
Maddi Yagna Sree	Kowthavari street, poornanandem peta, Vijayawada Andhra Pradesh 520003, India	India
Adduri kavya Sri Harini	6-9-7A, Tailor pet,R C M School road,jodu bommala center , Vijayawada Andhra Pradesh 520001, India	India
Malleda Avanthi	1-4-223/1, RTC work shop road , Vijayawada, Andhra Pradesh 520012, India	India

Abstract:

The present disclosure relates to context-aware autonomous circular announcement robot with dual-layer modular architecture and adaptive interaction. The system perception layer including a camera and/or depth sensor module and a high-level processing unit configured for environmental sensing, visual data acquisition, and evaluation. An execution layer includes a microcontroller unit, motor driver module, sensor array, battery pack, and wheel and drive mechanism for real-time control navigation. A hierarchical processing architecture distributes computational and control tasks between the layers. The system further includes a navigation module c simultaneous localization and mapping (SLAM), a context analysis engine configured to evaluate environmental parameters including noise level, activity, occupancy, conditions, and an announcement module configured to deliver circular information in audible form. The system autonomously navigates to designated locations an determines timing and mode of announcement delivery based on contextual conditions.

Complete Specification

Description:FIELD OF THE INVENTION:
The present invention relates to the field of autonomous mobile robotic systems, and more particularly to a context-aware robotic communication system configure structured and intelligent dissemination of circular information within indoor environments such as educational institutions.
More specifically, the invention pertains to a dual-layer modular robotic architecture comprising a perception layer and an execution layer, integrated with hierarchi processing, context analysis, and adaptive interaction capabilities to enable autonomous navigation and context-based announcement delivery.
BACKGROUND OF THE INVENTION:
In most educational institutions, dissemination of circular announcements is traditionally carried out manually. Typically, a non-teaching staff member physically ca printed circular and visits individual classrooms to either read out the information or distribute copies. While this conventional approach is simple to implement, it p several practical limitations in real-time academic environments.One major drawback of manual announcement delivery is classroom disruption. During regular aca hours, lectures are conducted continuously, and any interruption caused by entry of staff for announcements affects the flow of teaching and learning. This disrupt to loss of concentration among students and faculty, particularly when multiple announcements are issued within a short duration, such as during examination sch institutional events, or administrative updates.
Another significant limitation is delay in communication. In large campuses comprising multiple buildings, floors, and classrooms, manual dissemination requires considerable time to reach all locations. Consequently, certain classrooms receive information later than others, leading to inconsistency in awareness. Such delays cause confusion, especially when announcements relate to time-sensitive matters such as schedule changes, deadlines, or urgent instructions.

View Application Status