Next Quantum 2.0

24 Hours Non Stop **Hackathon**

robo mania 4th & 5th April'25
Where Innovation Meets Automation!

ROBOTICS AND DRONES

Team Name:

Accidental Coders

Team Members:
1. Piyush Raut
2. Sumedha Bali
3. Shreya Singh
4. Yogesh
5. Sakshi
6. Nikhil

ASTRA ROBO

❖ Problem Statements

Many robots today are either too expensive or lack the ability to communicate effectively. ASTRA ROBO is built to solve multiple real-world problems by providing a cost-effective robot that assists users through conversation & interaction.

LIMITED CHILD DEVELOPMENT	**ELDERLY DEPENDENCY ISSUE**	**TOURIST NAVIGATION & LANGUAGE BARRIERS**	**POOR PLANT HEALTH**	**UNNOTICED BEHAVIORAL ISSUES**	**UNSTABLE FARMING CONDITIONS**	**LACK OF DAILY UPDATES**
Excessive screen time limits real-world exploration	Elderly individuals face loneliness and forget vital tasks	Tourists struggle with navigation and lack cultural knowledge	Home gardeners struggle with plant care, causing unhealthy growth	Aggression, poor focus can silently harm their growth, affecting their future well-being	Inconsistent soil moisture and humidity levels lead to poor crop growth	People struggle to stay updated with news, innovations due to scattered sources

ASTRA ROBO

❖ Proposed Solution

ASTRA ROBO is an affordable, dynamic, portable humanoid robot designed to provide effective real-world assistance through natural conversation, interactive engagement. It enhances education, healthcare, tourism, and daily assistance by combining intelligent communication, real-time responsiveness, and cost-effective design, making advanced robotics accessible to everyone.

CHILD LEARNING AND DEVELOPMENT

Engages children with interactive learning to reduce screen dependency.

ELDERLY ASSISTANCE

Reminds them of important tasks, and assists in daily activities to improve their well-being.

TOURISM AND TRAVEL ASSISTANCE

Provides navigation, cultural insights, and local recommendations.

SMART GARDENING

Monitors soil moisture and humidity, giving care tips to ensure healthy plant growth.

BEHAVIOR ANALYSIS

Monitors speech and actions, providing insights for their improvement

SMART FARMING ASSISTANCE

Detects soil moisture and humidity, helps farmers maintain ideal crop conditions.

SMART DAILY UPDATES

Delivers news, updates, and the latest innovations without searching multiple source

TECHNICAL APPROACH

HARDWARE

LANGUAGE

FRONTEND & API

OTHER TOOLS & LIBRARIES

FEASIBILITY AND VIABILITY

Long-Term Savings
By automating daily tasks such as elderly care, agriculture monitoring, and tourist guidance, it minimizes labor costs and operational expenses over time

Costs
It consolidates multiple functions, reducing the need for separate devices, making it a budget-friendly solution for individuals and businesses.

ECONOMIC VIABILITY

Development Ease
Modular architecture allows scalability & easy updates

TECHNICAL FEASIBILITY

Smart IoT Integration
Uses **Arduino UNO, MG995 servo motor, ESP32 CAM Module, and other sensors** to detect humidity, temperature, and motion, providing real-time data-driven solutions.

IMPACT AND BENEFITS

IMPACTS

Reduce Skill Gap : Robotic Kits will be provided that will help in learning and innovation in robotics.

Promoting Sustainable Practices – Encourages efficient resource management in agriculture and home gardening.

Advancing Smart Agriculture – Improves crop yield by monitoring soil moisture and humidity sensing.

Enhancing Tourism Experiences – Assists travelers with navigation and cultural insights

BENEFITS

Cost-Effective Solution – Provides multiple functionalities in a budget-friendly design.

User-Friendly Interaction – Uses voice responses for easy and engaging communication.

Seamless Integration – Works with smart devices and sensors for enhanced automation.

Reliable Real-Time Data – Provides accurate insights on weather, soil moisture, and environmental conditions.

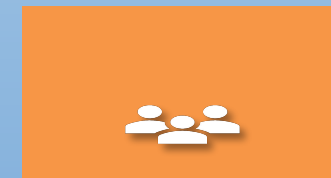# Progress Made

STAGE 1

Query Handling
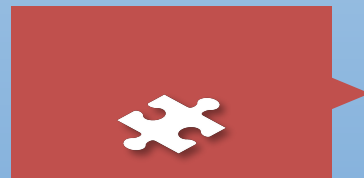
STAGE 2

Behavior Analysis

STAGE 3

Travel and Tourism

STAGE 4

Agriculture

STAGE 5

Elders Care

FUTURE SCOPE

🗣 Multilingual & Dialect Support

Supports Indian languages & dialects to enhance accessibility in rural & semi-urban regions.

🧩 Adaptive Learning Engine

Tracks user strengths & weaknesses over time to deliver personalized, growth-focused content.

🧠 Emotion & Sentiment Analysis

Detects emotional using camera; currently functional with ongoing refinements to boost accuracy.

🏥 Home Wellness Assistant

Monitors vitals, sends medication reminders & offers health tips—ideal for elderly & patients.

📊 Smart Voice-to-Message Automation

Converts speech into structured summaries & auto-sends via WhatsApp, email, or shared docs.

🌐 IoT & Smart Home Integration

Links with smart devices for automation, safety, & convenience in home environments.

	Affordable	Portable	Dynamic Use	Interactive	Customizable	Price Range
ASTRA ROBO	✔️	✔️	✔️	✔️	✔️	₹15,000 – ₹25,000*
Alexa	✔️	✔️	❌	❌	❌	₹4,000 – ₹10,000
Google Nest	✔️	✔️	❌	❌	❌	₹5,000 – ₹12,000
Pepper Robot	❌	❌	❌	✔️	❌	₹9,00,000+
Vector by Anki	❌	✔️	❌	❌	❌	₹25,000 – ₹35,000