A Greener Future.

GreenAI Services Pvt. Ltd.

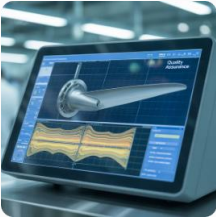**Transform Your Business with AI**

GreenAI Services Pvt Ltd

About GreenAI Services Private Limited

GreenAI Services Private Limited, incorporated on **January 3, 2024**, is a **DPIIT-certified startup** under the **Startup India** initiative by the Government of India. As a forward-thinking **Artificial Intelligence (AI) company**, GreenAI is committed to driving innovation across multiple industries through **cutting-edge AI solutions and customized large and small language models (LLMs).**
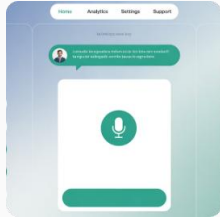
GreenAI
Services Pvt. Ltd.

GreenAI Services Pvt Ltd

Our Expertise

Vision Embedded Surface Analyser

Advanced imaging technology for precision surface analysis and quality control

Multilingual Voice-Based Chatbots

Specialized solutions for Legal and Healthcare sectors with multilingual capabilities

Remote Control & Monitoring Systems

Utilizing 4G/5G Network and LORA technology for comprehensive remote management

Smart Factory Automation

Transforming industrial operations with AI and IoT integrated applications

Customised Industrial Robotic Arms

Tailored robotic solutions for specific industrial applications and environments

Conversational Books & AI Tutors

Interactive learning solutions powered by conversational AI technology

Certificate Course

Industry-certified (with Jadavpur University) educational programs empowering learners with practical skills for the future of technology

Certificate Courses

Internship on Essentials of Gen AI and ML

Gain practical experience in Generative AI and Machine Learning through this comprehensive internship program.

2-Day Crash Course on Industry 4.0 (AI meets IoT)

Explore the convergence of Artificial Intelligence and Internet of Things in this intensive two-day crash course.

Campus to Corporate

Bridge the gap between academic knowledge and industry demands with this career readiness program.

Industry 6.0: The Future of Intelligent and Human-Centric Industry

Discover the cutting-edge concepts and technologies shaping the next era of industrial innovation.

Demystify LLMs for Engineering Graduates

Understand the core principles and applications of Large Language Models specifically tailored for engineering professionals.

Course on Full Stack Developer

Master both front-end and back-end development to become a proficient full-stack developer.

Technologies we are conversant for Vision Embedded Surface Analyser

🧠 Core Domains

- **Computer Vision**: OpenCV, image filtering, edge & texture analysis
- **Deep Learning**: CNNs (ResNet, YOLO, U-Net, Vision Transformers), PyTorch/TensorFlow
- **Machine Learning**: SVM, KNN, Decision Trees for classical tasks

📷 Camera & Sensors

- **Interfaces**: USB3, MIPI CSI, GigE
- **Types**: Area scan, line scan, 3D sensors
- **Lighting**: Coaxial, dark/bright field

⚙️ Embedded Systems

- **Hardware**: Raspberry Pi, Jetson Nano/Xavier, STM32, FPGAs
- **Programming**: C/C++, Python, CUDA, OpenCL
- **RTOS**: FreeRTOS, Zephyr

🚀 Acceleration & Optimization

- **Inference Engines**: TensorRT, ONNX, OpenVINO
- **Optimization**: Quantization, pruning, multi-threading, GPU usage

📡 Communication

- I2C, SPI, UART, Ethernet, CAN, USB, RTSP

🔧 Tools & Testing

- STM32CubeIDE, MLflow
- Datasets: MVTec AD, KolektorSDD, DAGM

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Technologies we are conversant for

Multilingual voice based chat bots - Major focus: Legal and HealthCare

Speech Tech

- **ASR (Speech-to-Text)**: Whisper, DeepSpeech, wav2vec 2.0, Azure Speech Services, AI for Bharat
- **TTS (Text-to-Speech)**: Tacotron 2, FastSpeech, Coqui TTS

Multilingual NLP/NLU

- **Models**: mBERT, XLM-R, IndicBERT, MuRIL, RAG, LLM
- **Frameworks**: Rasa NLU, spaCy, Transformers
- **Translation**: MarianMT, Fairseq

Domain Knowledge

- **Legal**
- **Healthcare**

Conversational Frameworks

- **Rasa**, **Botpress**, **Dialogflow CX**
- Dialogue flow, slot filling, context tracking

Security & Compliance

- **HIPAA/GDPR**, PII redaction, voice auth
- **Encryption**, **auditing**, secure logging

Backend & Deployment

- **APIs**: FHIR (health), legal databases
- **Cloud/Edge**: AWS, Jetson, GCP
- **Streaming**: WebRTC, gRPC

Technologies we are conversant for

Remote Control & Monitoring System using 4G/5G Network and LORA

Communication Technologies

- **LoRa / LoRaWAN** (low-power long-range communication)
- **4G/5G LTE Modules**: Quectel, SIMCom, Telit
- **MQTT**, **CoAP**, **HTTP/HTTPS** (for IoT messaging)
- **UDP/TCP/IP Stack**

Embedded Systems & Hardware

- **MCUs/MPUs**: STM32, ESP32, Raspberry Pi, Jetson Nano
- **LoRa Modules**: Semtech SX1276/78, RFM95
- **4G/5G Modules**: SIM7600, EC25, BG95
- **Antennas**, **Power Management**, **Serial Interfaces**

Software Stack

- **RTOS** (FreeRTOS, Zephyr) or Embedded Linux
- **Programming**: C/C++, Python, embedded drivers
- **Firmware OTA updates**

Cloud & Backend

- **Cloud Platforms**: AWS IoT Core, Azure IoT Hub
- **Data Storage**: InfluxDB, Firebase, PostgreSQL
- **Dashboards**: Grafana, Node-RED, custom web apps

Security

- **TLS/SSL**, **JWT/Auth tokens**
- **Device identity and provisioning**
- **Firewall/NAT traversal**

Monitoring & Control Logic

- **Sensor/Actuator integration**
- **Event-driven logic / Rules engine**
- **Remote firmware updates & diagnostics**

Technologies we are conversant for

Smart Factory Automation Using AI IOT application

Industrial IoT (IIoT)

- **Sensors & Actuators**: Temperature, Vibration, Proximity, Flow, etc.
- **Industrial Protocols**: Modbus, OPC UA, PROFIBUS, MQTT
- **Edge Devices**: Raspberry Pi, NVIDIA Jetson, Siemens IOT2040

Connectivity

- **Network**: Ethernet, Wi-Fi, LoRa, Zigbee, 5G
- **Gateways**: IIoT Gateways for protocol conversion
- **Cloud IoT Platforms**: AWS IoT, Azure IoT, Google Cloud IoT

AI/ML for Automation

- **Use Cases:** Predictive Maintenance, Quality Inspection, Anomaly Detection
- **Frameworks:** TensorFlow, PyTorch
- **Library**: OpenCV, Scikit-learn
- **Edge AI:** TensorRT, OpenVINO, NVIDIA DeepStream

Data Handling

- **Data Acquisition**: SCADA, PLC Integration
- **Databases:** InfluxDB, TimescaleDB, MongoDB
- **Data Streaming:** Kafka, MQTT Brokers (e.g., Mosquitto)

Automation & Control

- **PLCs:** Siemens, Allen-Bradley, Mitsubishi, etc
- **HMI Interfaces:** Touch panels, Web dashboards

Security & Compliance

- **Industrial-grade encryption**, device authentication
- **ISO 27001**, **IEC 62443** compliance standards

Visualization & Management

- **Dashboards**: Grafana, Power BI, Node-RED
- **Remote Monitoring**: Web/mobile apps, alerting systems

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Technologies we are conversant for

Customised Industrial Robotic Arm implementation

Mechanical Design & Hardware

- **CAD Tools**: SolidWorks, Fusion 360, AutoCAD (for design & simulation)
- **Actuators**: Servo motors, Stepper motors, BLDC motors
- **Encoders & Sensors**: Rotary encoders, IMUs, force sensors, limit switches
- **Motor Drivers**: L298N, DRV8825, ODrive, Roboclaw

Embedded Systems & Control

- **MCUs/MPUs**: STM32, ESP32, Raspberry Pi, Jetson Nano
- **Programming**: C/C++, Python
- **Control Algorithms**: PID, Inverse Kinematics, Trajectory Planning
- **Real-Time Systems**: FreeRTOS, ROS 2 with real-time patches

AI & Vision Integration

- **Computer Vision**: OpenCV, YOLO, Deep Learning for object detection
- **ML Frameworks**: PyTorch, TensorFlow (for adaptive learning/control)
- **Edge AI**: TensorRT, OpenVINO, Coral TPU

Motion Planning & Simulation

- **Simulation Tools**: Gazebo, MoveIt, RViz
- **Kinematics/Dynamics Libraries**: KDL, Orocos, RBDL

Communication & Interfaces

- **Protocols**: CAN, RS485, SPI, UART, Ethernet
- **Robot Middleware**: **ROS/ROS 2** (for modular control & coordination)

Monitoring & HMI

- **User Interfaces**: Qt, Web UI, Touchscreen panels
- **Remote Control**: MQTT, REST APIs, custom dashboards

Technologies we are conversant for

Conversational Books and AI based Tutor

Conversational AI

- **NLU/NLP Models**: GPT, BERT, T5 (for comprehension & answering)
- **Dialogue Management**: Rasa, LangChain, Microsoft Bot Framework
- **Text Understanding**: spaCy, Hugging Face Transformers

Voice Interaction (Optional)

- **ASR (Speech-to-Text)**: Whisper, DeepSpeech, Vosk
- **TTS (Text-to-Speech)**: Tacotron 2, Coqui TTS, FastSpeech

AI Tutor Capabilities

- **Personalization**: Student progress tracking, adaptive learning paths
- **Reinforcement Learning**: For interactive learning sessions
- **Knowledge Graphs**: Concept mapping, prerequisite tracking

Backend & Storage

- **Database**: PostgreSQL, Firebase, MongoDB (for storing sessions, Q&A)
- **Content Management**: Markdown/HTML parsers, EPUB/JSON book formats

Frontend Interface

- **Platforms**: Web (React, Vue), Mobile (Flutter, React Native)
- **UI/UX**: Interactive chat UIs, visual learning aids, quizzes

Hosting & Deployment

- **Cloud**: AWS, GCP, Azure for scalable tutoring backends
- **LLM APIs**: OpenAI, Anthropic, Cohere (or run models locally)

Privacy & Child-Safe Design

- **COPPA/GDPR Compliance**
- **Content Filtering**, usage limits, safe data storage

GreenAI Services Pvt Ltd

Full Time Management Team

1 **Prof. Dr. Prasenjit Majumder**
Director, GreenAI Services. Significant contributions in NLP and Information Retrieval for 25+ years.

2 **Mr. Berjis Desai**
Independent Legal Counsel and Principal Investor at GreenAI Services Pvt Ltd

3 **Mr. Sivaramakrishnan S Iyer**
Financial Advisor and Director at GreenAI Services Pvt Ltd

4 **Mr. Subrata Mitra**
Managing Director

5 **Dr. Dipasree Pal**
Assistant General Manager with 14+ years experience in Information Retrieval and NLP.

Consulting and Advisory Support

Academic Leadership

- Prof. Dr. Tathagata Bandyopadhyay - Director General, **DAU, Gandhinagar**
- Prof. Dr. Mandar Mitra - Professor, **Indian Statistical Institute, Kolkata**
- Prof. Dr. Samiran Chottapadhyay - Vice Chancellor, **Techno India University**
- Prof. Dr. Shouvik Kumar Guha, Associate Professor (Law), **NUJS, Kolkata**

AI Experts

- Dr. Debasis Ganguly - Lecturer, **University of Glasgow, UK**
- Dr. Srijoni Majumdar - Post Doctoral Researcher, **University of Leeds, UK**
- Dr. Parth Mehta - NLP Research Scientist, **Parmonic Inc, USA**
- Dr. Jainisha Sankhavara - PhD, DAIICT

Consulting and Advisory Support

Industry Support

- Srikant Kulkarni, CBO, President Business and Strategy, **Reliance Power Ltd.**

- Mr. Dipankar Das - Senior Engineering Manager, **Intel Corporation**

- Shuvam Patel, , **Apple Inc.**

- Preet Patel, Consultant in Data Engineering and Data Science, **KPMG**

- Kunal Panjwani, Consultant in Data Engineering and Data Science, **KPMG**

- Partha Sarathi Nandi, Managing Partner, **Amaze Power**

Technical Team

Full Stack Developer (6)

Embedded Systems Engineer (4)

Machine Learning Engineer   (4)

Robotic Arm Design Engineer AI Driven Factory Automation (4)

Why Choose GreenAI?

Government Recognition

DPIIT certified Startup India

Industry-Specific AI Solutions

Customized AI models for various sectors

Cutting-Edge Research & Innovation

Expertise in LLM fine-tuning and AI analytics

Commitment to Skill Development

Empowering professionals through AI education

GreenAI Services Pvt Ltd

Conclusion

At **GreenAI**, we are shaping the future of AI-powered innovation, enabling businesses and professionals to embrace intelligent automation and harness the full potential of artificial intelligence.

Explore the future with GreenAI – Where Innovation Meets Intelligence.

GreenAI Services Pvt Ltd

Thank You

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