JARVIS-IOT EXPO BRIEF (NOV 2025)

An Intelligent Guardian and Enterprise Assistant Platform

KEY EXPERIENCE HIGHLIGHTS

- Conversational Jarvis assistant with Gemini integration, Hinglish fluency, and synchronized LCD text so guests follow along even in loud expo floors.

- Always-on voice loop with motion-aware facial animations, giving a 'living' presence that reacts instantly to movement or speech.

- Modular robotics stack: pigpio-driven servos, L298N mobility, SPI/I2C sensors, and the new IR capture/replay toolset for universal-remote demos.

ENTERPRISE-READY FEATURE SET

- Role-based persona engine and memory tools let Jarvis shift from hospitality greeter to operations analyst without redeploying code.

- LangChain tooling allows scripted procedures: scan rooms, follow a user, update displays, or trigger facility workflows with natural-language triggers.

- Offline skill pack ensures continuity during network loss, while cloud services handle heavy reasoning when bandwidth is available.

GUARDIAN & PROTECTION SUITE

- 24/7 sentry mode: PIR motion, ultrasonic ranging, and camera tracking combine to monitor perimeters and orient Jarvis toward anomalies.

- Emergency-defense behaviors: raise audible alarm, activate warning lights via IR, and broadcast deterrent messages by code or voice.

- Personal safety protocols: on keywords like 'help' or 'kidnapping', Jarvis locks onto the speaker, records audio/video, and begins escalation.

INCIDENT ESCALATION WORKFLOW

1. Identify threat phrases or panic gestures; confirm via multi-sensor cross-check (motion spike, abnormal proximity, sustained loudness).

2. Secure the scene: illuminate area, focus camera, log environment metrics, and mark

GPS/Wi-Fi triangulation for location reference.

3. Notify stakeholders: place VoIP/SIP call or webhook to security desk, auto-send SMS or email with timestamp, location, and live transcript to predefined family or guardians.

4. Escalate externally when required: package incident summary for local police or fire station, including address, captured media, and sensor readings.

5. Maintain evidence: archive 60-second pre and post buffers from microphones, cameras, and sensor snapshots to encrypted storage for review.

SAFETY SENSORS & AUTOMATION

- Air-quality and LPG monitoring: MQ-series sensors via MCP3008 detect gas spikes, triggering ventilation commands and alert scripts.

- Thermal and fire detection roadmap: integrate MLX90640 thermal array and flame sensors to flag overheating equipment or open flames.

- Structural awareness: ultrasonic sweep maps obstacles, while gyroscope (planned) detects tampering or forced movement.

- IR recording plus replay enables remote shutdown of appliances (TVs, AC, heaters) when hazards are detected.

BUSINESS & FUNDING OUTLOOK

- Security-as-a-service pilot: bundle Jarvis units with monitoring subscriptions for residential societies, co-working spaces, and campuses.

- Enterprise integrations: REST or MQTT APIs feed corporate security operations center dashboards (Splunk, Azure Sentinel) for compliance-grade logging.

- Partnership model: collaborate with facility managers, smart-home OEMs, and insurers to reduce incident response times and premiums.

- Revenue roadmap: hardware leasing, recurring AI concierge fees, premium analytics, and white-labeled assistant personas for brand partners.

FUTURE ROADMAP & INNOVATION

- Autonomous navigation: fuse LiDAR or vision SLAM with wheel encoders to patrol pre-

defined routes and auto-dock for charging.

- Emotionally intelligent responses: multimodal AI to read expressions or posture and adjust tone, stance, and messaging in real time.

- Edge AI upgrades: integrate local 7B-class language models for private deployments and add federated updates for continuous learning across fleets.

- Interoperability: Matter or OPC-UA connectors so Jarvis orchestrates HVAC, lighting, and access control in smart buildings.

RISK MANAGEMENT & COMPLIANCE

- Redundant power architecture isolates motors from compute, with watchdogs monitoring voltage, current draw, and pigpio health.

- Privacy-first logging: redact personal data, offer opt-in modes, and align with GDPR or DPDP compliance for enterprise pilots.

- Fail-safe overrides: physical emergency stop, remote kill-switch API, and scripted self-checks (verify_fixes.sh) before public demos.

- Spare modules and recovery plan: hot-swappable servos, pre-flashed SD recovery cards, and cloud backups of configuration.

SENSORS & PROTECTIVE COVERAGE SUMMARY

- Motion (PIR BCM17) and ultrasonic (TRIG 27 / ECHO 22) provide wide-angle human and obstacle detection.

- Environmental (DHT BCM4, MQ-3 via SPI) track temperature, humidity, alcohol or LPG levels for fire and leak prevention.

- IR guard mode logs and replays remote commands for appliance shutdown or emergency signage activation.

- Display and audio cues keep occupants informed during alerts, while networking stack dispatches help autonomously.

CONTACT & EXPO READINESS

- Live demo checklist: run test_complete_hardware.py, confirm pigpiod plus sensors, load IR remote profiles, and stage panic-word drill.

- Provide QR code to this brief, video sizzle reel, and investment deck outlining unit economics and deployment timeline.

- Team prepared for Q&A on manufacturing partners, certification roadmap, and AI safety protocols.