CHANDRA MOULI SIRISALA

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Education

Master of Science in Electrical Engineering **Aug 2024 – Dec 2025**

University at Buffalo, USA (Graduated Dec 2025)

- Relevant Coursework: Semiconductor Devices I & II, VLSI Electronics, Digital Signal Processing, MIMO Wireless Communications, Wearables & Implantable Sensors, Internet of Things (IoT).

Bachelor of Technology in Electronics & Communication Engineering **Aug 2021 – Apr 2024**

Krishna University, India

- Relevant Coursework: Microcontrollers & Interfacing, Control Systems, Digital Signal Processing, VLSI Design, Optical Communication, CMOS IC Design, Digital Electronics, Linear ICs, Microprocessors, Microwave.

Technical Skills

Languages: Embedded C, C, Python, MATLAB
Hardware & Validation: Analog/digital circuits, sensor interfacing, **power regulation basics**, **PCB design**, prototyping (breadboard), debugging/fault isolation, data logging; **oscilloscope, multimeter**
Embedded Firmware & Interfaces: GPIO, interrupts, timers, PWM, ADC; UART/I^2C/SPI; debouncing, thresholding/hysteresis; **RTOS concepts** (tasks, scheduling, IPC basics)
Embedded Platforms: Arduino UNO, Raspberry Pi 5, ESP8266 (NodeMCU), ESP32-CAM; real-time acquisition; low-power concepts (duty cycling)
Sensors: DHT11/DHT22, soil moisture, LDR, PIR motion, proximity/IR; optional RS485 NPK
Tools/OS: Linux, Git/GitHub, basic shell scripting
Simulation/EDA: ANSYS HFSS, **LTspice**, **Cadence Virtuoso**; S-parameters, VSWR, radiation patterns

Projects

Smart Sensor Monitoring & Dashboard System (Raspberry Pi 5, Multi-Sensor) **Fall 2025**

- Boosted repeatability across **3 sensors** by bringing up Raspberry Pi 5 sensing (temp/humidity, soil via ADC, light) and validating **GPIO + I^2C/SPI** reads.
- Reduced debug time in long runs by adding time-stamped **CSV/telemetry logs** and a lightweight dashboard to trend signals and flag drift/noise **during multi-hour soak tests**.
- De-risked integration by testing the Python pipeline and validating sensor $\rightarrow$ processing $\rightarrow$ dashboard/logs across repeatable runs **under version-controlled test cases**.

AI-Enabled Smart Thermostat System (Arduino, Sensor Fusion, Low Power) **Fall 2024**

- Enabled occupancy-aware HVAC decisions by fusing **temperature, motion, and light** on **Arduino** to infer occupancy/day-night context **with clear state transitions**.
- Cut response latency (**40% faster**) by tuning event-driven control with **thresholding + hysteresis** to minimize oscillations and switching **during rapid occupancy changes**.
- Lowered idle power draw (**25%**) by applying **duty cycling** and optimizing sensor sampling intervals during steady-state operation **without sacrificing sensing accuracy**.

Smart Parking System Using IoT (Arduino UNO + ESP8266 + ThingSpeak + Mobile App) **2022–2023**

- Delivered occupancy detection for **6 slots** by wiring **IR sensors** and implementing state logic on **Arduino UNO + NodeMCU (ESP8266) with reliable debounce filtering**.
- Streamed slot status to **ThingSpeak** every **15 s** via channel fields and API keys for near real-time visibility.
- Improved usability and access control with a **MIT App Inventor** UI (green/red), PWM **servo** gate, and **ESP32-CAM** streaming.

Experience

Research Assistant – RF & Antenna Design **Jan 2023 – Apr 2024**

KRUCET (Krishna University College of Engineering and Technology), Dept. of ECE *Machilipatnam, India*

- Established a repeatable EM simulation workflow in **ANSYS HFSS** and evaluated antennas via **S-parameters/VSWR**, bandwidth, gain, and far-field patterns.
- Achieved strong impedance matching at **5.2 GHz** (**return loss** $\approx$ **–30.60 dB**, **gain** $\approx$ **5.58**) by optimizing an **E-shaped patch with DGS** using edge feeding and parametric sweeps.
- Validated **mmWave** operation at $\sim$**42.15 GHz** (**return loss** $\approx$ **–30.54 dB**, $\sim$**4.5 GHz** bandwidth) by tuning a printed 5G patch and characterizing radiation/directivity.
- Published **2 IRJET papers** documenting setup, methodology, and reproducible parameters/results.

Telecommunications / RF Intern – All India Radio (AIR) **May 2023 – Jul 2023**

RF Broadcasting Systems *Visakhapatnam, India*

- Maintained 24x7 broadcast reliability by monitoring RF chains (antenna systems, transmitters, STL links) and assisting with isolation **during live on-air operations**.
- Accelerated troubleshooting by checking transmitters, PAs, and filters using **oscilloscopes and DMMs** and logging anomalies.

Networking Trainee – Cisco **Jun 2020 – Nov 2020**

Networking & Switching

- Built routing/switching fundamentals by configuring **IP addressing, basic routing, and segmentation** in labs while analyzing traffic flow using **OSI/TCP/IP**.