Narsi Reddy Sanikommu

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linkedin

Education

Master of Science - Mechanical Engineering — **Aug 2024 - May 2026**
JOHNS HOPKINS UNIVERSITY — *Baltimore, MD*

Bachelor of Technology - Mechanical Engineering — **July 2016- May 2020**
National Institute of Technology (NIT Trichy) — *Tiruchirappalli, India*

Skills

Programming Languages	**Python** | C++ | C
Software	Microsoft Projects | **Minitab** | Arduino IDE | MATLAB | Processing code | ROS2 | CorelDRAW | **KiCAD** | CAD modeling (**SolidWorks, CATIA**, ANSYS, Abaqus, Creo, AutoCAD, NX CAD) | Revit | Teamcenter PLM | NumPy
Technical Skills	**GD&T**| **SAP (ECRO, ECM, BOM, PO)** | 3D Printing and rapid prototyping (FDM and SLA) Bio Design| RCA| CAPA | Product Innovation| Product development| **Design Controls(User needs, System Requirements, DIDO, V&V, DVDR, and Engineering change)**| MSA | DFSS | DFMA| Photolithography| softlithography | Microfluidic device design | MEMS Device Fabrication| TEM | SEM

Experience

Soft, autonomous microneedle rolls for oral drug delivery in GI track, Dr Gracias Lab — **Oct 2024 - Present**
Research Assistant — *Baltimore, MD*

- Designed and fabricated soft, autonomous microneedle roll devices using **photolithography & soft lithography** for targeted drug delivery in the GI tract to treat autoimmune disorders like **Crohn's disease and ulcerative colitis**. Conducted animal testing and optimized microneedle geometry for enhanced in vivo performance.

Becton, Dickinson, And Company — **July 2020 - Aug 2023**
Design Engineer 2, Design Engineer 1, GET — *Bangalore, India*

- Led multiple PE projects involving material change by updating **SolidWorks** drawings per **GD&T** standards, planned and executed DV activities, analyzed data with **Minitab**, DV Protocols & report release, DV Reviews, and ECRO process through **Teamcenter PLM** and **SAP**. Completed projects 2 weeks ahead of schedule, avoided back-orders and operation delays.
- Coordinated **Test Method updates** by designing a new test fixture and performed **MSA** and **FEA** simulations to replicate fixture engagement with components. Updated and leveraged existing MSA, reducing DV tests by **5x** and saving **2 weeks** of testing time.
- Analyzed historical product data to identify lots eligible for re-sterilization during the **Steril Milano recall**, validated safety via leak and pull tests, and enabled significant cost savings; supported REACH compliance by flagging products with potential **PFOA content**.
- Revised and implemented incoming inspection protocols and fixture updates at the plant level, ensuring statistical sampling aligned with reliability/confidence level standards—reducing repacking issues by **12%**.
- Updated and validated **112 BOMs in SAP**, coordinating with plant stakeholders to avoid duplicate work; detected **5 BOM errors** early, preventing **3 weeks** of potential rework.
- Led **root cause analysis (RCA)** on high-pressure leak test failures, implementing fixture and instruction updates that prevented re-testing, preserved **100%** of DV test data, and saved an estimated **$20K** in retesting costs and project delays.
- Conducted **VoC surveys** and **market scouting** to identify unmet needs in medical devices. Developed solutions and built prototypes with in-house **SLA and FDM printing** for rapid decision-making, and comprehensive testing with fixtures. Cutting development time from **ideation to final prototype to 3 weeks**.
- Innovatively leveraged existing BD PIVC platform components to create a new HDS product prototype in **1 week at a cost of $100**; led internal VoCs and validation activities, proposing a commercialization strategy that projected **6 months reduction in NPD timelines** and substantial regulatory and testing cost savings by utilizing pre-existing FDA-cleared data.
- Submitted **68 Invention Disclosure records**, with **14 IDR** filed as **US patents**, and some are in pipeline.

Siemens COE, NIT Trichy — **May 2019 - Jun 2019**
CAD Designer — *Tiruchirappalli, Tamil Nadu, India*

- Designed a **12m electric bus for a BHEL** project using **NX CAD & Nastran**, modeling major subassemblies and performing structural analysis (**Ansys, HyperWorks**) to reduce weight by 15% and optimize seating for a 2:1 seat-to-stand ratio.

Notable Projects

Single-Cell Refreshable Display to Teach Braille | Baltimore, MD — **Aug 2024 - Dec 2024**

- Engineered a novel Braille literacy system achieving 95% typing accuracy and real-time error correction by integrating Arduino, MATLAB, solenoid actuators, and a custom-built PCB into a refreshable tactile display and vibration-feedback keyboard, reducing reliance on instructors and enhancing independent learning for visually impaired individuals

Resistance Spot Welding of Dissimilar Metals | Btech. Final Year Thesis — **Jan 2020 - May 2020**

- Developed an **FEA model in Ansys** to study the effect of control parameters (electrode tip diameter, current, heating cycle) on weld nugget quality and strength of resistance spot welding, validating results through physical tests and reducing experimental costs by **50%**. (link)

Notable Publications

Stable flow regulator assembly:	US20240175499A1 (Application granted)
Fluid connector system:	US12186518B2 (Application granted)
Comprehensive list and details of the patents:	(Google Scholar)