
First Principle Energy

— Let's Reinvent Energy —

PV-Enhanced Thermal Salt Battery

First Principle Energy - Let's Reinvent Energy

- Company Description: First Principle Energy is an innovative startup dedicated to cost effective thermal battery to decarbonize process industry.
- Mission Statement: Our mission is to revolutionize the thermal storage industry by offering versatile, affordable, and easy-to-install solutions, contributing to a more sustainable future.
- Product Highlight: PV supported molten salt based thermal storage battery.
- Team: Led by a team of experienced professionals in renewable energy, engineering, and business.
- Achievements: Patent pending design and preliminary design complete.
- Vision: Poised to disrupt the thermal storage industry and make thermal storage more accessible.

Need for Thermal Storage

Bloomberg

The Next Half-Trillion-Dollar Market – Electrification of Heat.

Forbes

Thermal Batteries Could Cut U.S Industrial Heating Power Costs In Half



Thermal Energy Storage Market Size Worth US\$ 22.6 Bn by 2031 | Registering at a CAGR of 16.3%.

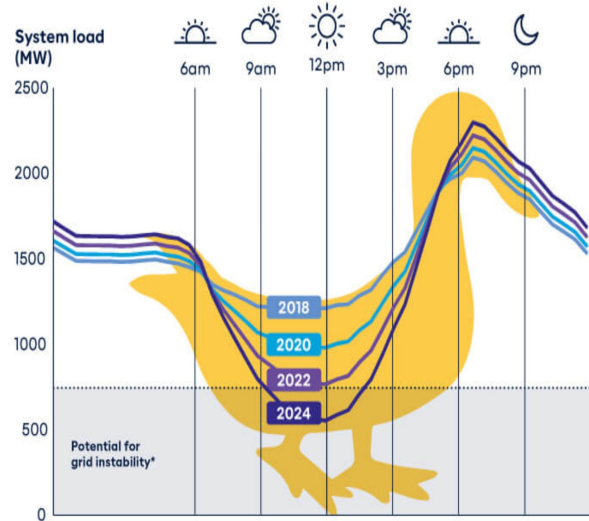
Our Mission's Challenge

CO2 Emissions



20% of all greenhouse gas emissions are due to industrial processes.

Energy Price Fluctuation



Wholesale California electricity prices over 24 h on a spring day varies between 0-60 \$/MWh

Fossil Fuel Use



92% of the process heat used in the industrial sector in the US is derived from the fossil fuels.

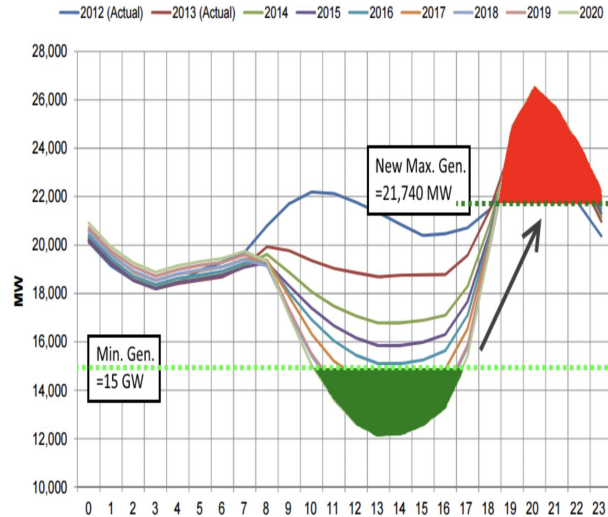
Navigating the Problem: Our Method

No CO2 Emissions



Storing clean thermal energy from PV in form of molten salt get rid of CO2 emission

Charging and Discharging



Charge with PV or when cost of energy is low, discharge when cost of electricity is high

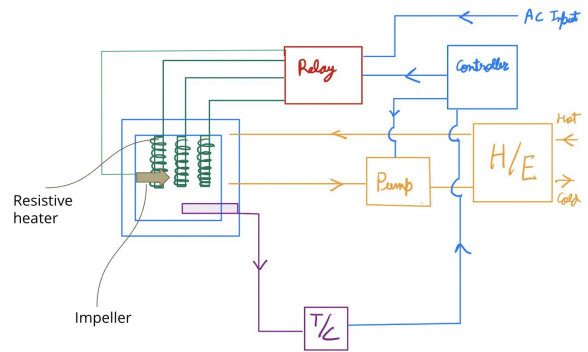
Solar Integration



Solar provide unlimited source of clean energy for industrial process heat

Accomplishments

Conceptual Design Completed



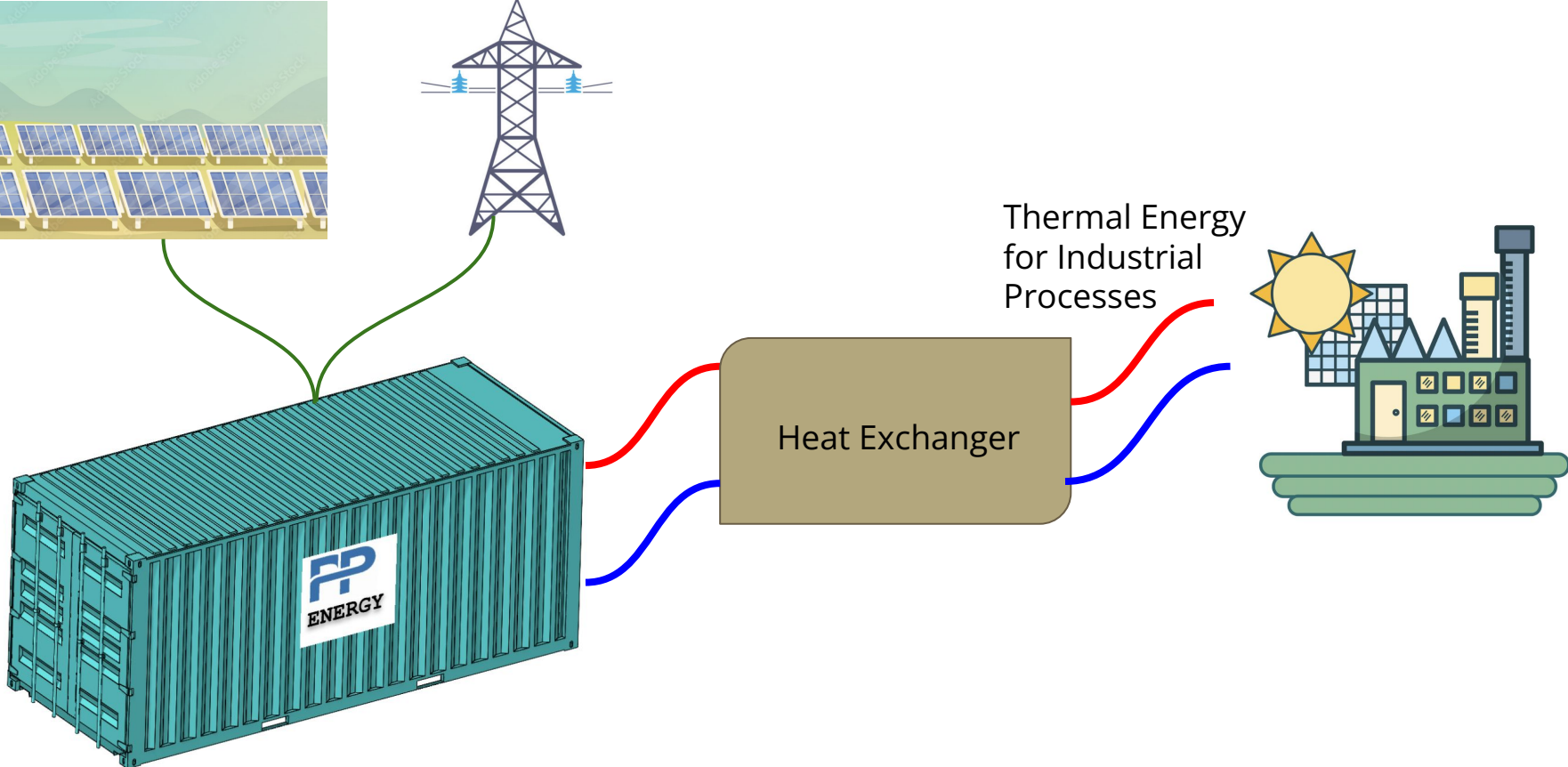
Patent Pending



Market Research and Analysis

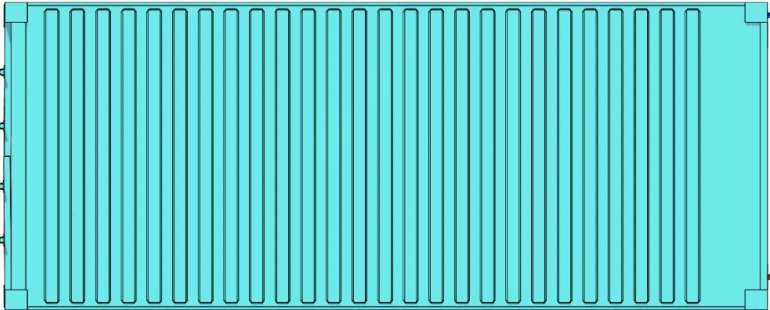


PV - Thermal Battery - Industrial Process Heat

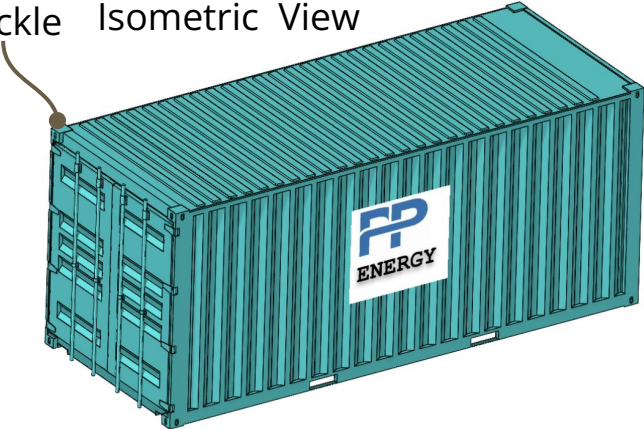


Design Introduction and Enclosure

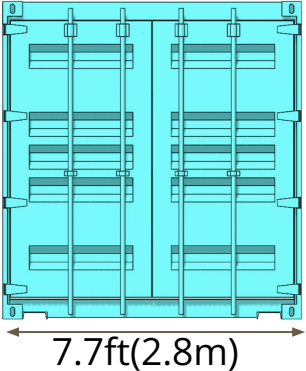
Top View



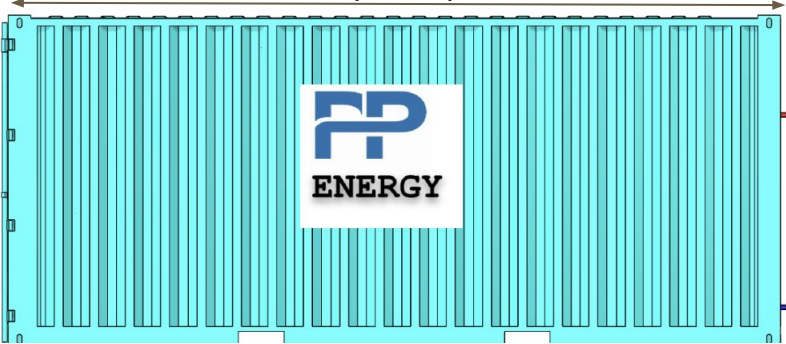
ISO Knuckle Isometric View



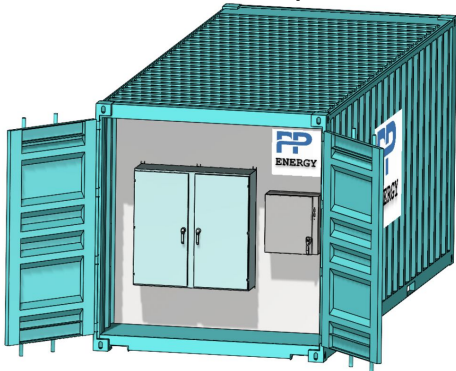
Front View
Door closed



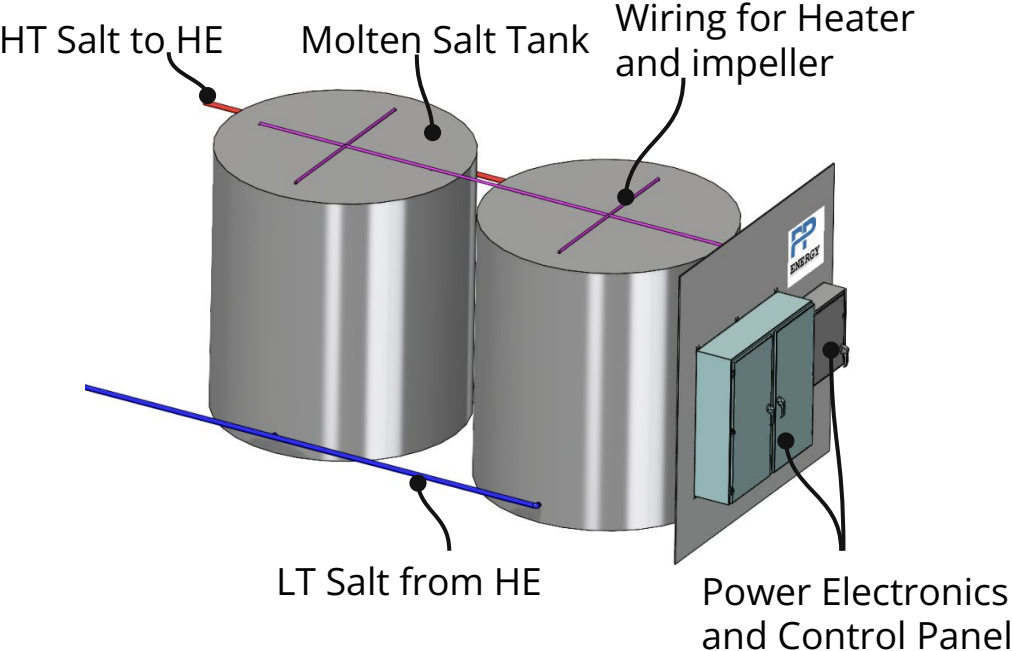
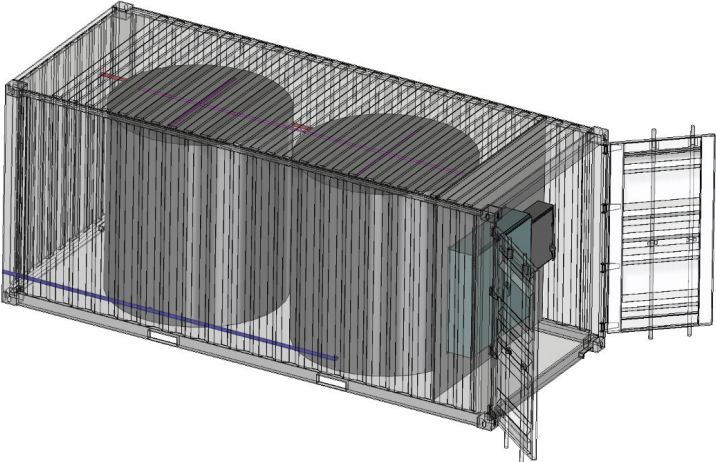
Side View
19.4ft(5.9m)



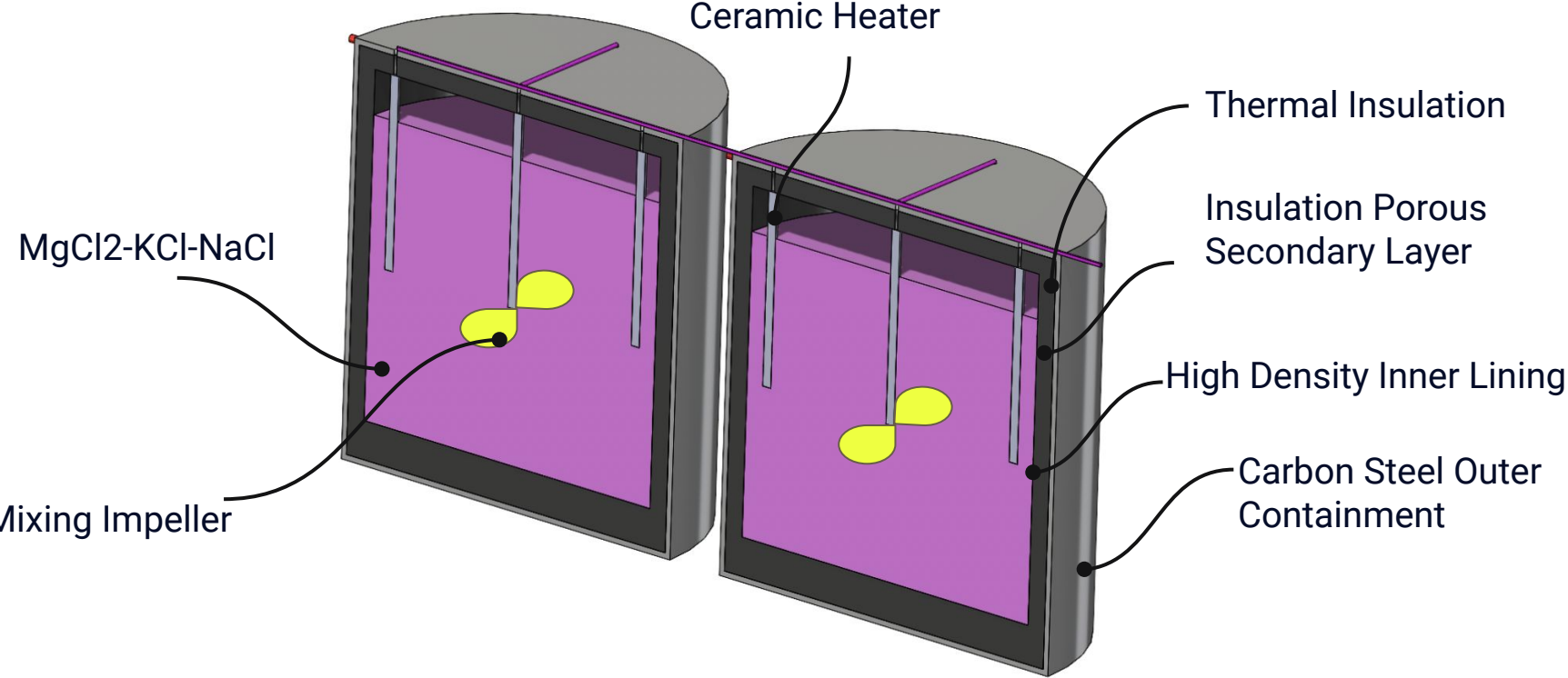
Front View
Door open



System Layout



Molten Salt Tank Design

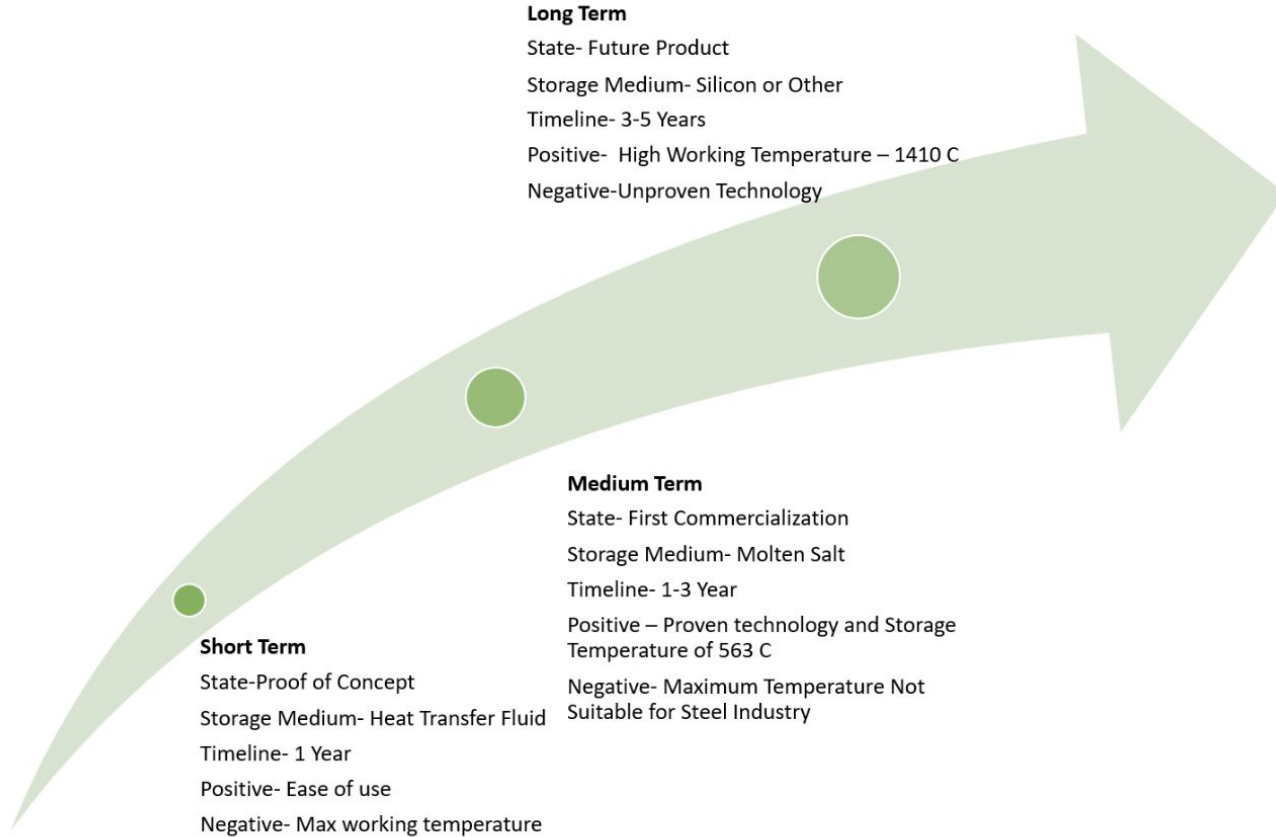


Competitive Analysis



Thermal Storage Technologies	Parameters							
	Cost	Energy Density	Geographical Constraint	Safety	Flexibility	Direct Storage	Rate(Charge/ Discharge)	Intermittent Energy
PV-Enhanced Thermal Salt Battery	●	●	●	●	●	●	●	●
Traditional Batteries (e.g., Li-ion batteries)		●	●		●		●	●
Pure Renewable Systems						●		
Graphite-Based Thermal Storage System						●		●
Brick-Based Thermal Storage System						●		●

Product Roadmap



Team Members



Nikhil Kumar
Team Lead



Smriti Singh
Electrical Lead



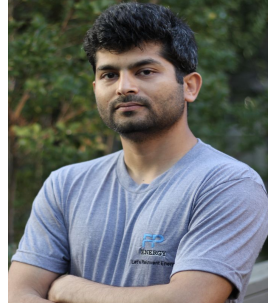
Vaishali Juneja
Analytics Lead



Spriha Rai
Strategy Lead



Nilesh Kumar
Process Lead



Dayal Ramachandran
Software Lead



Ankur Wadhwa
Operation Lead



Ashish Tripathi
Sales Lead

Team Experience and Education

Work Experience



TESLA



Deloitte.



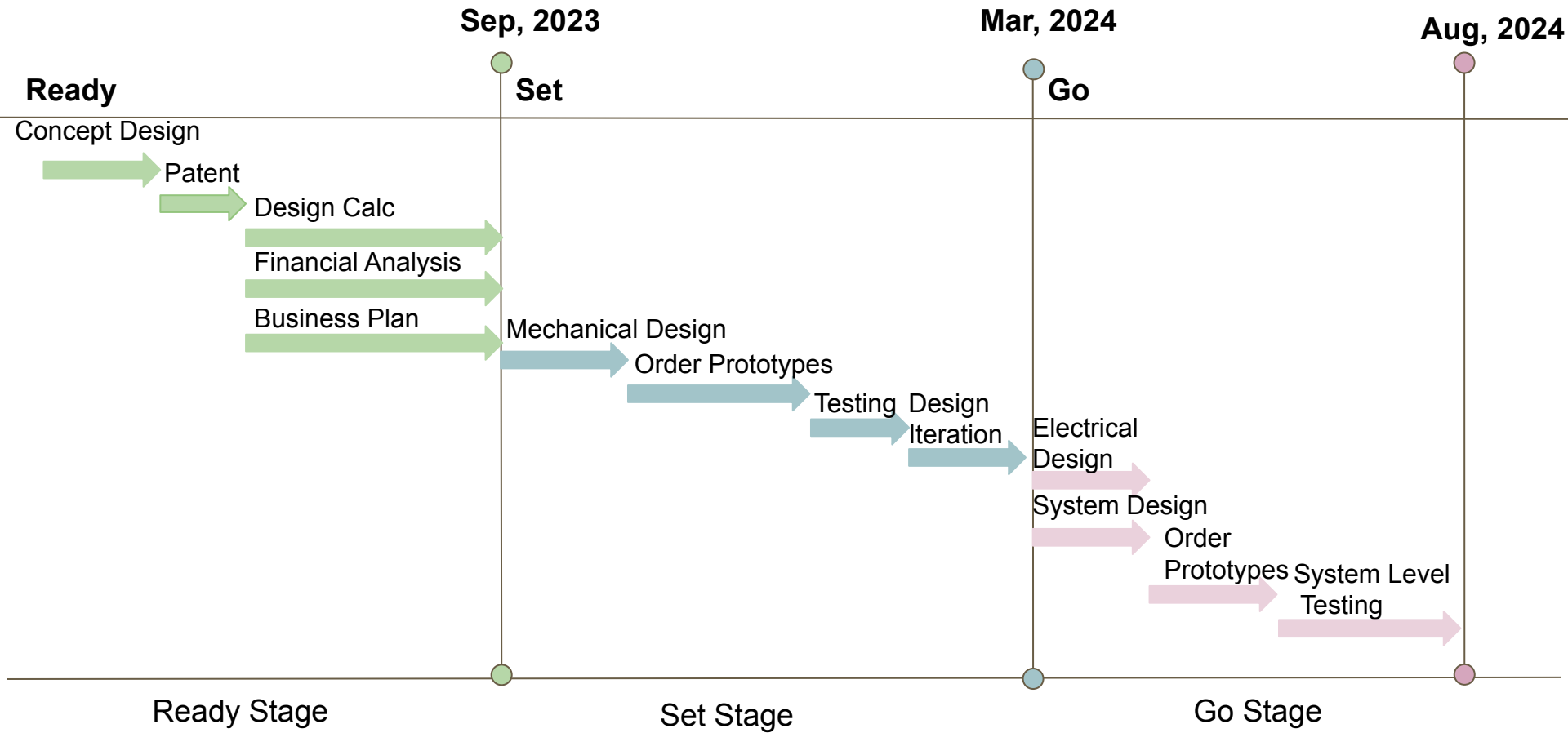
Education



Team Skill Matrix

Name	Professional Experience	Proof of Excellence	Expertise
Nikhil K	Current: Tesla Motors (Total 11+ Years)	6 Patents in Utility Solar Industry	Renewable Energy Products, PV, Battery Storage
Spriha R	Current: Deloitte Consulting (Total 10+ Years)	Management consultancy provided to several Fortune 500 companies in field of clean energy and others	Business Consulting, Chemical Engineering
Nilesh K	Current: Apple Inc (Total 11+ Years)	Market launch of Apple Watch, iPhone 13, iPhone 14, and iPhone 15	Manufacturing, Process Optimization, Quality & System Engineering
Ankur W	Current: Apple Inc (Total 8+ Years)	Market launch of iPhone, Mac-book, iPad and Apple pencil	Industrial Engineering, Process Optimization
Dayal R	Current: Applied Materials (Total 14+ Years)	Developed and implemented several tool control software for Applied Materials globally	Embedded Systems, Software Development
Vaishali J	Current: Cadence Design Systems (Total 4+ Years)	Successful completion of several automation and control projects	Automation, Big Data & IoT
Ashish T	Current: Gusto (Total 15+ Years)	Closed several sales deals in India and the United States	Sales, Product Management

Plan to Achieve the Goal



Thank you