TEAM FLUIDS
IIT KHARAGPUR

LAUNCHING

MEANDER456 SOLAR POWERED ELECTRIC SCOOTER

Team Fluids members' (IIT KHARAGPUR):

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MARKET OVERVIEW

Economic

1. Current valuation at USD 5 billion
2. Expected to reach USD 47 billion by 2026
3. CAGR of above 44% (2021-2026)

Causes

1. Cleaner Mobility.
2. Soaring oil prices.
3. Growth of Online Delivery.

Growth Reasons

1. Strong technology.
2. Government policies.
3. Increasing consumer awareness.

Competitive Scope

1. Less concentrated new competitors.
2. Scope of market domination.
3. First to absorb EV transition will win.

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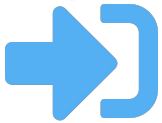
PORTER'S FIVE FORCES





Threat of new entrants (HIGH)	Bargaining power of suppliers (HIGH)	Bargaining power of buyers (MODERATE)	Threat of substitute products (LOW)	Rivalry among competitors (HIGH)
• Indian EV market is at its **nascent stage** and it is growing at a huge pace. • High competition in the future because of its **unexplored market state**.	• **70%** of components are being **imported** from other countries such as China and Taiwan. • Less negotiation power for buyers due to **concentrated suppliers** of batteries.	• Less number of suppliers with **huge incoming market demand.** • Decrease in **manufacturing costs** and **ownership costs of EVs** will take years.	• Currently **ICEVs** account for **99% of vehicle sales,** hence less EV competitors in the current space. • **Strong technology** will be one of the standout criteria.	• Competition is **fragmented** i.e. mainly from the established auto companies. • **High** competition in terms of **innovative solutions** may create rivalry in the **future**.

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OUR SOLUTION

Introducing **Meander456** in the EV space as our solution to cope with the current problems of environmental degradation and climate change simultaneously taking a mild refuge with the battery system.

Details

1. The e-scooter will also be **solar powered** with an **extremely efficient design** (shown on the next page).
2. The **solar panels** help in **charging the battery** on the route. Assuming, incident radiation of 3W and charging of 1kWhr/day, maximum torque of 26Nm with **top speed of 90km/hr** can be achieved.
3. The **Silicone soft gel seat** will act as a **heat resistor**(heat capacity-1.1kJ/kg/K) keeping the **seat cooler and comfortable in hot conditions.**
4. The scooter will have **decent leg space** and will also be fitted with a **screen for navigation and bluetooth purposes**.
5. **Solar lights** will be incorporated so, in case of **extreme emergency** the solar panel can charge the battery through **solar lights**.

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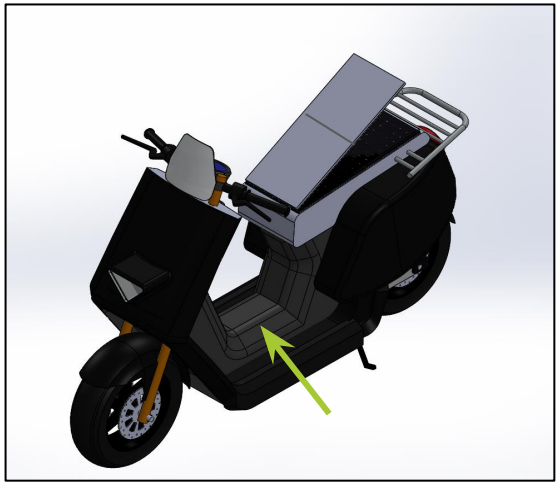
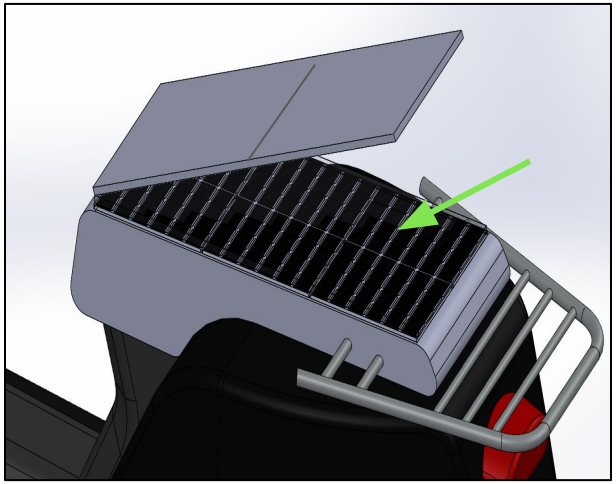
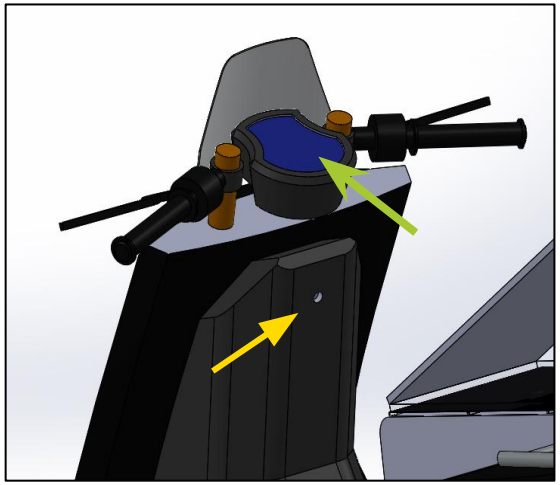
DETAILED DESIGN



- **Good leg space** with a hook near footrest for solar panel charging.
- **Large silicone soft gel seat** is comfortable and gives extra space for **more solar cells**.



- **Bendable seat cover** to rotate and hook it near the footrest.
- **Eye appealing design** unlike shed like solar structures which covers a huge area.
- **Solar lights** help in extreme conditions of no sunlight.



- **One plug charging point** (shown by arrow) for quicker charging.
- **Touch based screen** with features like bluetooth and for navigation purposes.

*The above model is made from SolidWorks, images shown just gives a descriptive idea of our model.

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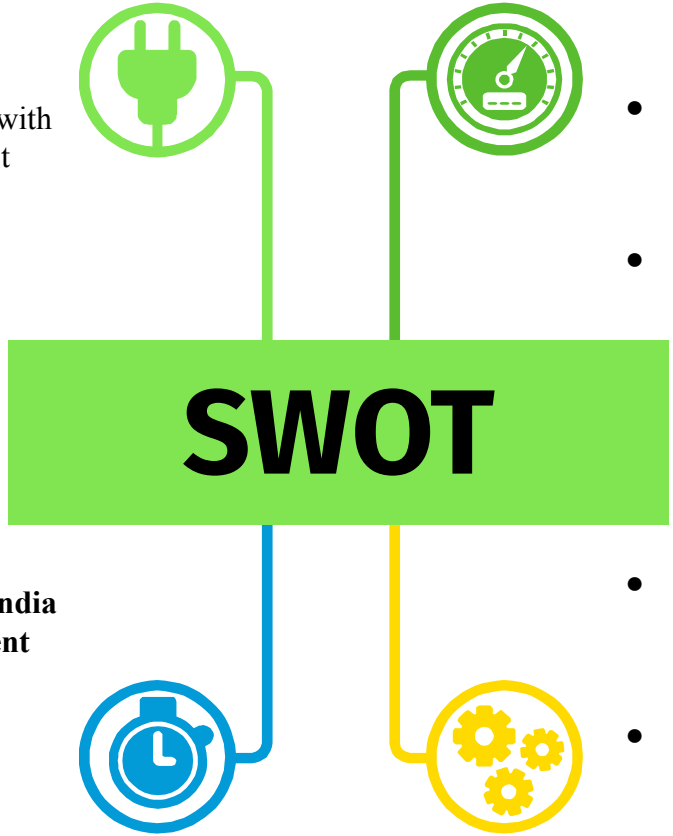
PRESENT SWOT ANALYSIS

STRENGTH

- **Efficient technology** based product with few competitors in the current market scenario.
- Synergises with the **environmental norms** and its related government policies.

WEAKNESS

- A new startup with **less capital**, **lower market penetration** as compared to other competitors.
- Solar recharging may take l**onger duration** to charge the battery and require **regular cleaning** of the panels.



OPPORTUNITY

- Inclusion of solar panels in **FAME India** thereby having a scope of **government funding**.
- **Reducing dependence** on import of lithium-ion batteries in the coming future by **increasing domestic production.**

THREAT

- **Rise in prices** of Solar panels, **short supply** of Lithium-ion batteries can hamper production.
- **Competition from bigger players** like TVS, Motosola who can plan to launch similar products powered by solar energy.

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PRICING MODEL

The pricing model of our company is based on the strategy of **competitor based pricing** and **cost based pricing**.

1. To bring sustainability of our product in the market, we have considered **competitors' price** of companies such as OLA and Ather.

2. Following a **minimalist approach**, we tried to find the minimum cost of the required parts, like Lithium-ion batteries, manufacturing parts, solar panels and lights etc.

Hence,we decided to put up a price of Rs. 1,14,750 to get a gross profit of 35% i.e. Rs 29,750 on our total cost of Rs 85,000 which makes the process sustainable and viable for future expansion.

PARTS	**PRICE**
Lithium Battery	₹23,000
Flexible Solar Panels x 4	₹1,500 x 4 = ₹6,000
Manufacturing of body and other parts	₹40,000
Solar Processing and conversion costs + Others	₹16,000
Total cost	**₹85,000**

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EXPECTED FINANCIALS

CAGR

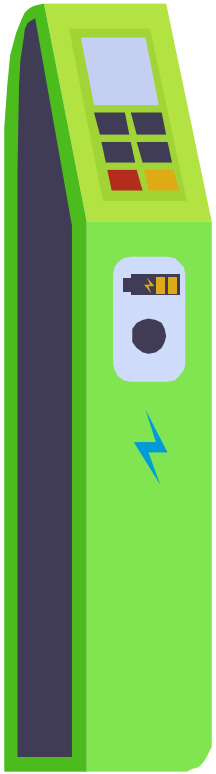
- The industry **CAGR is 44%** and is expected to grow strongly.
- Being a **newbie**, we expect a **CAGR of 20%.**

SALES

- We aim to reach the target of **800-1000 units**.
- This will be around **3-4%** out of the 25,735 units sold in the 2021-22 (Data given in the case).

MARKET SHARE

- Considering **strong technology** and **early bird advantage**.
- By 2026, we aim to capture **18-20% of the market** .



FUTURE SALES

- Considering **competitor's data, CAGR growth** and **sector growth.**
- Our sales should reach around **70,000 units** in 2026 alone.

FUNDING

- On **competitive**, **mission** and **value** based pricing model.
- We expect to raise a **seed funding** of $550k

PROFITS

- With a profit margin of around **Rs 29,750** per unit.
- Under ideal analysis, our company should hit strong profits by **2026**

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MARKETING STRATEGY

SPONSORING

Tying up with universities for publicity by **sponsoring** some in-budget events or fests.

WOMEN EMPOWERMENT

Minimum 25% employment criteria to foster women participation in auto industry also spreading **word of mouth.**

BLOGS

Writing weekly blogs for maintaining the **eye-presence** among the EV market players and investors.

SOCIAL MEDIA

Maintaining **regular presence** on all major social media platforms like Facebook, Instagram and Linkedin etc.

INSURANCE

Providing less expensive and long term insurance on battery and solar panels as compared to our peers.

ENVIRONMENT CAMPAIGNS

Publicising through advertisements and campaigns under the motto of **climate awareness.**

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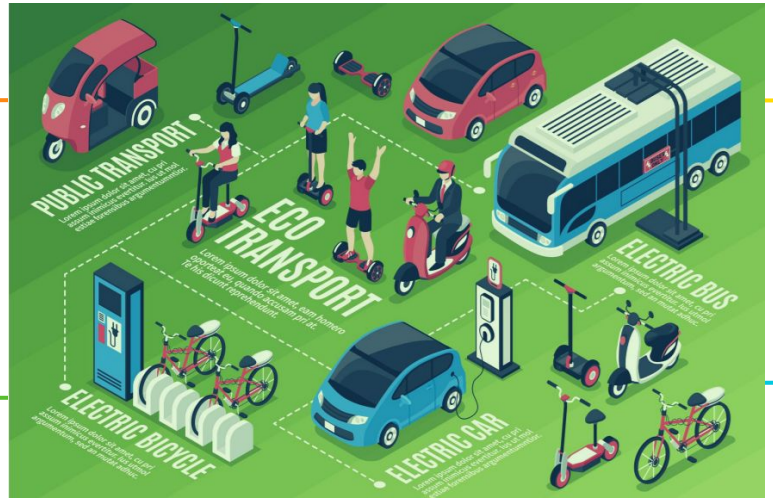
IPT SECTOR IN TELANGANA (B2B)

- Partnering with I**ndian battery companies** manufacturing batteries.
- This would reduce the overall cost.

- Direct procuring of mechanical parts from **small manufacturers** which will power us with **high negotiation prospects.**
- This will also **uplift the segment** of small manufacturers.



- Partnering with **local solar panel manufacturers** manufacturing flexible solar panels.
- This will **reduce production costs** and help those firms attain visibility by partnering with us.

- We will seek support from **companies with high CSR budget** which have a **common vision** to **fund portions** of our expenses.
- We will provide **free services** for 6 months as a logical trade off of **money and services**.

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IPT SECTOR IN TELANGANA (B2C)

- The IT companies are generally situated **far away** from the residential areas.
- Hence, companies have to offer **pickup services** for their employees which is currently ICEVs based.

- Increased Use of **Marketing Automation Tools** like ML/AI will be beneficial for B2C marketing.
- In this case, these companies are our **consumers using our services**, making it a B2C resource.

- **Huge IT parks** in Hyderabad, Khammam and Nizamabad which are home to big IT companies like **Wipro, TCS, Capgemini** etc.
- They plan to achieve **net zero emissions by 2030-2040.**

- Hence as a part of our **B2C** measures we plan to launch **solar powered 6 seater** vehicles in future.
- We will shake hands with these IT companies to offer **pickup and dropoff** services for their employees.

APPENDIX

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1. Case study data
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THANK YOU!!