

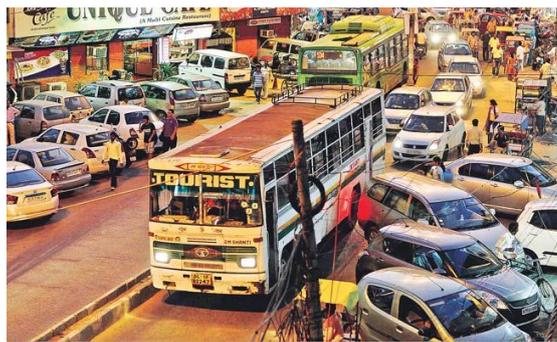
## Ultra Nano E-Class

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### ABSTRACT

*With the hike in the automobile fuel prices straining your budget and also people are facing parking space problem ,which is reducing day by day , it is only wise to look at new source of economical, pollution-free, safe and easy to handle mean of personal transport.*



*ULTRA NANO E -CLASS are battery-operated, economical, and Zero Tail Pipe Emission 3 wheelers. ULTRA NANO E –CLASS is derived from the 2 wheel self balancing car named (Segway-p.u.m.a),but its main disadvantage of 2 wheel self balancing car is that sensor which are used in this car are very costly and non economical,normal person can't afford it (for a 2 seater car it s cost near about 6-8 lakh rupees) .So in order to make affordable and economical ULTRA NANO E – CLASS is mechanically designed foldable car and battery powered ,follows a 3 wheel steering mechanism without any reverse gear with a 0.5m turning radius & based on electrical technology where the rechargeable battery replaces the conventional engine,with an unbeatable cost of RS.20000/-\*.ULTRA NANO E –CLASS is an better solution for solving parking space and batteryconsumption problems.*

*ULTRA NANO E –CLASS can be charged as easily as a mobile phone wherever electric power connection is available. Once fully charged it can travel up to 75kms\* in one charge depending on the load, speed & road condition. What's more, for a fractional cost of just Rs 50 ULTRA NANO E –CLASS can runs for 500kms\*.*

*This means forever freedom from the expensive petrol.*

*Unlike petrol two-wheelers, the eco-friendly ULTRA NANO E -CLASS don't add to your city's air-pollution and noise-pollution. This is because ULTRA NANO E –CLASS are battery-operated Zero Tail Pipe Emission 3 wheelers (ZEV's), which prevent harm to the environment and make the earth a better place to live in.*

**Key word :** ULTRA NANO E –CLASS



ULTRA NANO E-CLASS

## 1. INTRODUCTION



### ULTRA NANO E-CLASS

The ULTRA NANO E-CLASS is an electrically powered road vehicle as a concept vehicle representing the future of urban transportation.

It operates on three wheels placed side by side in tadpole position, a layout that differs in placement from motorcycles which instead have their two wheels placed at the front and rear, vehicle that can carry two passengers side by side at up to 75km/hr.

It is the world smallest & cheapest personal electric foldable vehicle. The folding allows the automobile to be reduced from an already diminutive height of 150cm down to a mere 40cm. The folding is carried out during parking, [2]



Fig 1- ULTRA NANO E-CLASS



### SPECIFICATION

BODY STYLE =1 BOX 3 DOOR ,  
**Dimensions (L\*W\*H)**1100 mm\*1000 mm\*1500 mm

#### Motor Power

750W @ 570RPM, 1100W @ 500RPM

**\*Customer Benefit** Higher motor power enables more weight carrying capacity

**Torque**45Nm @ 150RPM

**\*Customer Benefit** Higher torque provides better pickup

**Battery**48 V, 33 Ah

**\*Customer Benefit** Higher Ah provides long range

**Vehicle weight** 45 kg Strong Chaise

**Electricity Consumption**1.6 Unit

**\*Customer Benefit** (if battery is fully discharged)Low electricity Consumption

**Charging Time**6-8 Hrs Overnight Charge

**Tyre Width**3" X 16"

**\*Customer Benefit** Wider tyres provide better grip and balance while riding

**Top Speed**45 Km/Hr

**\*Customer Benefit** Higher speed saves travelling time

**Range/Charge**

70-75 km @ 75 kg \*\*,65-70 Km @ 130 Kg

**Payload Capacity** Up to 130 Kg

**ESTIMATED COST** =Rs 20,000/-\*

### 2.METHODOLOGY FLOW-

An **automobile, autocar, motor car** or **car** is a wheeled motor vehicle used for transporting passengers, which also carries its own engine or motor. Most definitions of the term specify that automobiles are designed to run primarily on roads, to have seating for one to eight people, to typically have four wheels, and to be constructed principally for the transport of people rather than goods

A **three-wheeler** is a vehicle with three wheels, either "human or people-powered vehicles" (HPV or PPV or velomobiles) or motorized vehicles in the form of a motorcycle, all-terrain vehicle (ATV) or automobile. Other names for three-wheelers include trikes, tricars and cyclecars. The term tricycle is used somewhat interchangeably, but the term *three-wheeler* is more often applied to motor vehicles. They can be legally classed as either automobiles or motorcycles.

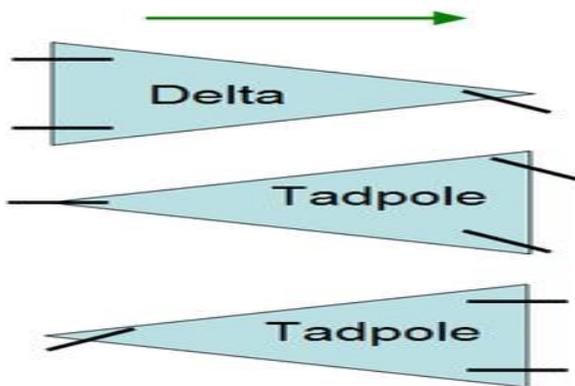


Diagram demonstrating the wheel positions for various three-wheeled car configurations when turning  
In our project we are combining 2 tadpole position 2<sup>nd</sup> and 3<sup>rd</sup> one.

### Two rear

Having one wheel in front and two in the rear for power reduces the cost of the steering mechanism, but greatly decreases lateral stability when cornering while braking

### Lateral stability

The disadvantage of a three-wheel configuration is lateral instability - the car will tip over in a turn before it will slide, unless the centre of mass is much closer to the ground or the track width is much wider than a similar four-wheel vehicle. Electric three-wheelers often lower the center of gravity by placing the heavy battery pack at the base of the vehicle.

## 3 .ADVANTAGES & DISADVANTAGES

**Electric cars** are becoming increasingly more desirable, and overall they have more advantages than disadvantages

### Advantages

- The number one advantage of an electric vehicle is that no gas is required. One example is the Chevy Volt. It has a battery range of 40 miles. That means it can drive for 40 miles without using gas. 40 miles is more than the range of an average commute to work, so you can go to and from work using no gas. With minimal gas usage comes great savings. You do need gas in the Volt in case your battery runs out or you go for a long distance. However, the amount of fill ups per year will be much fewer with an electric vehicle
- You can plug the car into any outlet of the proper voltage and charge the car. Electricity is much cheaper than gas, and the savings will be dramatic

### Disadvantage

- The first disadvantage is price. Electric car batteries are not cheap, and the better the battery, the more you will pay. For example, the Chevy Volt has a 40 mile range and sells for around \$30,000. Compare that to the 250 to 300 mile range of cars made by Tesla Motors, which sell for anywhere between \$50,000 and \$100,000
- Even though it is a quiet ride, silence can be seen as a disadvantage. People like to hear cars when they are coming up behind them or beside them, and you can't hear if an electric car is near you. This has been known to lead to accidents

## 7. REFERENCE

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