Visualization Tool for Electric Vehicle Charge and Range Analysis

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Visualization Tool for Electric Vehicle Charge and Range Analysis

1.Introduction

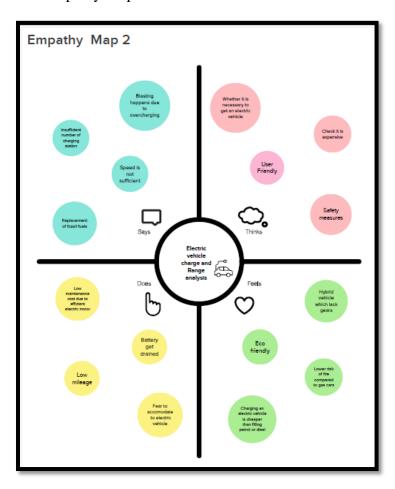
The Electric vehicles industry at a nascent stage. It is less than 1% of the total vehicle sales. However has the potential to grow to more than 5% in few years.

The supply of fossil fuels keeps on depreciating the scenario is very critical and hence it is the right time for the world to slowly adapt to electric vehicles. A transformation is very essential. Hence awareness about the electric vehicle must be established to the public.

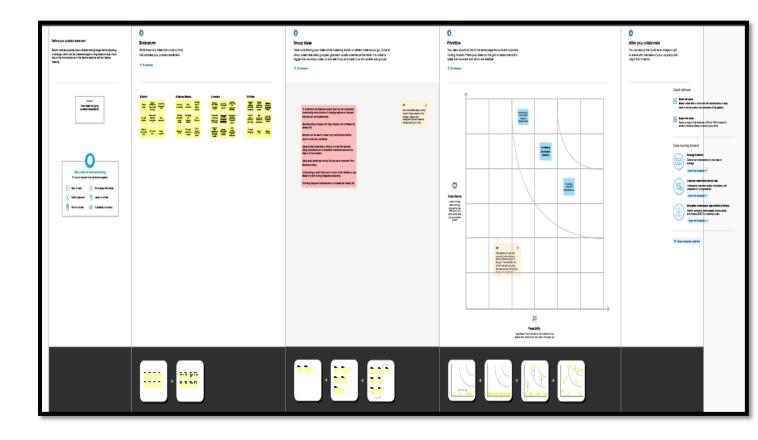
The purpose of the project is to analyse about the electric vehicle their advantages, disadvantages and to know about the companies that are manufacturing electric vehicles and to categorise them according to their features to know about their efficiency and reliability.

2. Problem Definition and Design Thinking

2.1 Empathy Map

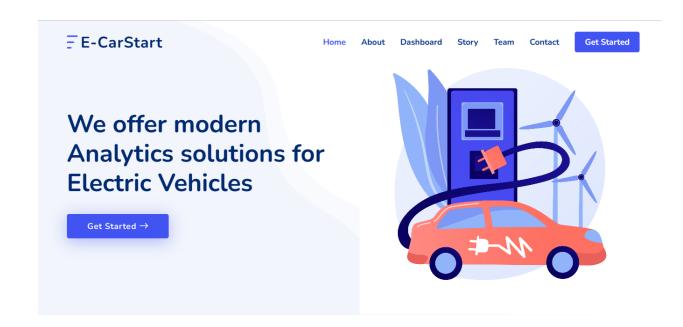


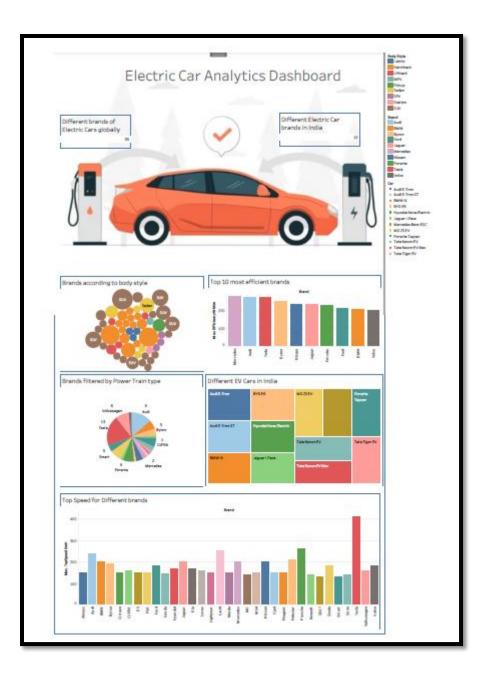
2.2 Brain Storming



Result







4. Advantages and Disadvantages

- No fuel required so you save money on gas.
- Environmental friendly as they do not emit pollutants.
- Lower maintenance due to an efficient electric motor.
- **Better Performance.**
- Electric vehicles are easy to drive and quiet.
- Convenience of charging at home.
- ➤ Battery lifespan concerns.
- ➤ Low top speeds
- ➤ More expensive to buy
- ➤ It takes long time to recharge.

5. Application

Results can be use in various automobile fields based on electricity to enrich the production and marketing.

6. Conclusion

In this project visualize tool for electric charge and range analysis and also the advantages and disadvantages, application are also discussed.

7. Future Scope

This can be implemented in all the electric vehicle to enrich their production and manufacturing to flourish in market.

8. Appendix

Source code

```
href="https://fonts.googleapis.com/css?family=Open+Sans:300,300i,400,400i,600,600i,700,700i|Nunito:300,300i,400,400i,600,600i,700,700i|Poppin
 <link href="assets/vendor/glightbox/css/glightbox.min.css" rel="stylesheet">
 <link href="assets/vendor/remixicon/remixicon.css" rel="stylesheet"</pre>
 <link href="assets/vendor/swiper/swiper-bundle.min.css" rel="stylesheet">
 <!-- Template Main CSS File -->
 <link href="assets/css/style.css" rel="stylesheet">
   <div class="container-fluid container-xl d-flex align-items-center justify-content-between">
     <a href="index.html" class="logo d-flex align-items-center">
       <snan>F-CarStart</snan>
         <a class="nav-link scrollto active" href="#hero">Home</a>
         <a class="nav-link scrollto" href="#about">About</a>
         <a class="nav-link scrollto" href="#values">Dashboard</a>
         <a class="nav-link scrollto" href="#services">Story</a>
         <a class="nav-link scrollto" href="#team">Team</a>
         <a class="nav-link scrollto" href="#contact">Contact</a>
         <a class="getstarted scrollto" href="#about">Get Started</a>
   <div class="container">
     <div class="row"
       <div class="col-lg-6 d-flex flex-column justify-content-center">
         <h1 data-aos="fade-up">We offer modern Analytics solutions for Electric Vehicles</h1>
         <div data-aos="fade-up" data-aos-delay="600">
              <span>Get Started</span>
       <div class="col-lg-6 hero-img" data-aos="zoom-out" data-aos-delay="200">
         <img src="assets\img\12085817_20944306.jpg" class="img-fluid" alt="">
 <main id="main">
        ====== About Section ====== -->
   <section id="about" class="about">
```

```
<div class="container" data-aos="fade-up">
       <div class="row gx-0">
         <div class="col-lg-6 d-flex flex-column justify-content-center" data-aos="fade-up" data-aos-delay="200">
           <div class="content"
             <h3>E-Car Start</h3>
              <h2>E-Cart Start is a complete analytics tool for electric vehiles all over the world.</h2>
               The Electric Vehicle (EV) is not new, but it has been receiving significantly more attention in recent years. Advances in
both EV analytics and battery technologies have led to increased automotive market share. The modern mechatronic vehicle marries electrical
storage and propulsion systems with electronic sensors, controls, and actuators, integrated closely with software, secure data transfer, and
data analysis, to form a comprehensive transportation solution. Advances in all these areas have contributed to the overall rise of EV's, but
the common thread that runs through all these elements is data analytics.
             <div class="text-center text-lg-start">
                 <span>Read More</span>
                 <i class="bi bi-arrow-right"></i>
         <div class="col-lg-6 d-flex align-items-center" data-aos="zoom-out" data-aos-delay="200">
           <img src="assets\img\EV.jpeg" class="img-fluid" alt="">
     <div class="container" data-aos="fade-up">
       <header class="section-header">
         <h2>Dashboard</h2>
         E-Car Start Analytics Dashboard
       <div class="row">
value='https:8#47;8#47;public.tableau.com/static/images/Ele#47;ElectricCarsAnalytics/Dashboard1/1.png' /> <param</pre>
name='animate_transition' value='yes' /><param name='display_static_image' value='yes' /><param name='display_spinner' value='yes' /><param
document.getElementById('viz1671689536453');
                                                              var vizElement = divElement.getElementsByTagName('object')[0];
    if ( divElement.offsetWidth > 800 ) { vizElement.style.width='1320px';vizElement.style.height='2227px';} else if (
divElement.offsetWidth > 500 ) { vizElement.style.width='1320px';vizElement.style.height='2227px';} else {
vizElement.style.width='100%';vizElement.style.height='2527px';}
                                                                                    var scriptElement = document.createElement('script');
                scriptElement.src = 'https://public.tableau.com/javascripts/api/viz_v1.js';
 vizElement.parentNode.insertBefore(scriptElement, vizElement);
    </section><!-- End Values Section -->
    <section id="features" class="features">
     <div class="container" data-aos="fade-un">
         <h2>Features</h2>
          There are many different features of our project
       <div class="row">
          <div class="col-lg-6"</pre>
```

```
<img src="assets/img/features.png" class="img-fluid" alt="";</pre>
         <div class="col-lg-6 mt-5 mt-lg-0 d-flex">
           <div class="row align-self-center gy-4">
             <div class="col-md-6" data-aos="zoom-out" data-aos-delay="200">
                  <i class="bi bi-check"></i>
                 <h3>Analyse the currect stats</h3>
             <div class="col-md-6" data-aos="zoom-out" data-aos-delay="300">
               <div class="feature-box d-flex align-items-center">
                 <i class="bi bi-check"></i>
                 <h3>Get to know EV more</h3>
             <div class="col-md-6" data-aos="zoom-out" data-aos-delay="400">
                 <i class="bi bi-check"></i>
                 <h3>Know about Charging Stations</h3>
               <div class="feature-box d-flex align-items-center">
                 <h3>Top performing Brands</h3>
             <div class="col-md-6" data-aos="zoom-out" data-aos-delay="600">
                 <i class="bi bi-check"></i>
                 <h3>different brands in India</h3>
                 <i class="bi bi-check"></i>
                 <h3>different brands Globally</h3>
       <div class="row feture-tabs" data-aos="fade-up">
           <h3>Overview of Electric Vehicle Sector</h3>
               <a class="nav-link active" data-bs-toggle="pill" href="#tab1">Overview</a>
               <a class="nav-link active" data-bs-toggle="pill" href="#tab2">Pricing</a>
           <div class="tab-content">
               <The supply of fossil fuels is constantly decreasing. The situation is very alarming. It is time for the world to slowly</p>
adapt to electric vehicles. 
                 <h4>A lot of change needs to happen</h4>
                Major carmakers like Tesla and Porsche manufacture many electric vehicles.
```

```
<i class="bi bi-check2"></i></i>
                                  <h4> The improvement of battery technology in recent years has led to the higher popularity of electric vehicles.</h4>
                              Spylog an electric vehicle can be a great choice for consumers. The drive quality, low noise levels, and convenience are
really great.
                             In the United States, one year of driving a petrol car can cost from 1500 USD to 2500 USD.
                              <div class="d-flex align-items-center mb-2";</pre>
                                <i class="bi bi-check2"></i
                                 <h4>On the other hand, the driving cost of Electric Vehicles is 500 USD. Electric cars are more preferable.</h4>
                              The maintenance cost of electric vehicles is also very low. They are economical to maintain.
                                  <h4>The energy conversion efficiency of electric vehicles is also high.</h4>
                              Flectric vehicles use 60-70% of electrical energy. On the other hand, vehicles based on internal combustion engines have
an efficiency of 18-22% only. The energy cost of manufacturing an electric vehicle is also very high, but considering everything and the fact
that charging electric vehicles is very cheap, EVs are a great option. Manufacturing batteries is an important task in the production of
Electric vehicles.
                   <div class="col-lg-6">
                      <img src="assets\img\e-car.jpg" style="height: 80%; width: 100%;" class="img-fluid" alt="">
        <!-- ====== Services Section ====== --> <section id="services" class="services">
           <div class="container" data-aos="fade-up">
               <header class="section-header">
                 <h2>Story</h2>
                  Electric vehicles Analytics Story
               <div class="row gy-4">
                   <div class='tableauPlaceholder' id='viz1671651172763' style='position: relative'><noscript><a href='#'><img alt='Story of Electic</pre>
style='border: none' /></a></noscript><object class='tableauViz' style='display:none;'><param name='host_url' value='https%3A%2F%2Fpublic.tableau.com%2F' /> <param name='embed_code_version' value='3' /> <param name='site_root' value='' /><param name='embed_code_version' value='3' /> <param name='site_root' value='' /><param name='embed_code_version' value=''' /><param name='site_root' value='' /><param name='embed_code_version' value=''' /><param name='site_root' value='''' /><param name='site_root' value=''' /><param name='site_root' /><param name='
name='name='name='static_image' value='flectricCarsAnalytics/8tory1' /><param name='tabs' value='no' /><param name='tabs' value='no' /><param name='toolbar' value='yes' /><param name='static_image' value='https:&#47;8t47;public.tableau.com&#47;static&#47;images&#47;ElectricCarsAnalytics&#47;Story1&#47;1.png' />
 <param name='animate_transition' value='yes' /><param name='display_static_image' value='yes' /><param name='display_spinner' value='yes'
/><param name='display_overlay' value='yes' /><param name='display_count' value='yes' /><param name='language' value='en-GB' /><param</pre>
                                                                                                                                                                                                                             var divFlement =
document.getElementById('viz1671651172763');
                                                                                                                       var vizElement = divElement.getElementsByTagName('object')[0];
       vizElement.style.width='1016px';vizElement.style.height='991px';
                                                                                                                                                                     var scriptElement =
                                                                                                 scriptElement.src = 'https://public.tableau.com/javascripts/api/viz_v1.js';
 document.createElement('script');
            vizElement.parentNode.insertBefore(scriptElement, vizElement);
        </section><!-- End Services Section -->
           <div class="container" data-aos="fade-up">
                 cheader class="section-header"
```

```
<h2>Testimonials</h2
         What they are saying about us
       <div class="testimonials-slider swiper" data-aos="fade-up" data-aos-delay="200">
         <div class="swiper-wrapper">
           <div class="swiper-slide">
             <div class="testimonial-item">
                  fill"></i><i class="bi bi-star-fill"></i>
                 Proin iaculis purus consequat sem cure digni ssim donec porttitora entum suscipit rhoncus. Accusantium quam, ultricies eget
id, aliquam eget nibh et. Maecen aliquam, risus at semper.
                 <img src="assets/img/testimonials/testimonials-1.jpg" class="testimonial-img" alt="">
                 <h4>Ceo &amp; Founder</h4>
                 <i class="bi bi-star-fill"></i><i class="bi bi-star-fill"></i><i class="bi bi-star-fill"></i></i><i class="bi bi-star-fill"></i></i></i></i></i></or>
                 Export tempor illum tamen malis malis eram quae irure esse labore quem cillum quid cillum eram malis quorum velit fore eram
velit sunt aliqua noster fugiat irure amet legam anim culpa.
                 <img src="assets/img/testimonials/testimonials-2.jpg" class="testimonial-img" alt="">
                 <h3>Sara Wilsson</h3>
                 <h4>Designer</h4>
           <div class="swiper-slide">
             <div class="testimonial-item">
                 Enim nisi quem export duis labore cillum quae magna enim sint quorum nulla quem veniam duis minim tempor labore quem eram
duis noster aute amet eram fore quis sint minim.
                 <img src="assets/img/testimonials/testimonials-3.jpg" class="testimonial-img" alt="">
                 <h3>Jena Karlis</h3>
                 <h4>Store Owner</h4>
           <div class="swiper-slide">
             <div class="testimonial-item">
                  <i class="bi bi-star-fill"></i><i class="bi bi-star-fill"></i><i class="bi bi-star-fill"></i><i class="bi bi-star-fill"></i></i><i class="bi bi-star-fill"></i></i></i></i></i></i></i>
                 Fugiat enim eram quae cillum dolore dolor amet nulla culpa multos export minim fugiat minim velit minim dolor enim duis
veniam ipsum anim magna sunt elit fore quem dolore labore illum veniam.
                 <img src="assets/img/testimonials/testimonials-4.jpg" class="testimonial-img" alt="">
                 <h3>Matt Brandon</h3>
            </div><!-- End testimonial item -->
```

```
<div class="testimonial-item">
              <div class="stars"
                fill"></i><i class="bi bi-star-fill"></i>
                Quis quorum aliqua sint quem legam fore sunt eram irure aliqua veniam tempor noster veniam enim culpa labore duis sunt
culpa nulla illum cillum fugiat legam esse veniam culpa fore nisi cillum quid.
              <div class="profile mt-auto">
                <img src="assets/img/testimonials/testimonials-5.jpg" class="testimonial-img" alt="">
                <h3>John Larson</h3>
                <h4>Entrepreneur</h4>
     <div class="container" data-aos="fade-up">
       <header class="section-header">
        <h2>Team</h2>
         Our hard working team
       <div class="row gy-4">
         <div class="col-lg-3 col-md-6 d-flex align-items-stretch" data-aos="fade-up" data-aos-delay="100">
          <div class="member
            <div class="member-img">
              <div class="social":
                <a href=""><i class="bi bi-instagram"></i></a>
            <div class="member-info">
              <h4>Walter White</h4>
              <span>Chief Executive Officer</span>
              <P>Velit aut quia fugit et et. Dolorum ea voluptate vel tempore tenetur ipsa quae aut. Ipsum exercitationem iure minima enim
corporis et voluptate.
         <div class="col-lg-3 col-md-6 d-flex align-items-stretch" data-aos="fade-up" data-aos-delay="200">
          <div class="member"</pre>
            <div class="member-img">
              <div class="social"
                <a href=""><i class="bi bi-instagram"></i></a>
                <a href=""><i class="bi bi-linkedin"></i></a>
            <div class="member-info">
              <h4>Sarah Jhonson</h4>
              <span>Product Manager</span>
              Qp>Quo esse repellendus quia id. Est eum et accusantium pariatur fugit nihil minima suscipit corporis. Voluptate sed quas
reiciendis animi neque sapiente.
          div class="col-lg-3 col-md-6 d-flex align-items-stretch" data-aos="fade-up" data-aos-delay="300":
```

```
<div class="member-img">
               <img src="assets/img/team/team-3.jpg" class="img-fluid" alt="">
                <div class="social":
                 <a href=""><i class="bi bi-facebook"></i></a>
                 <a href=""><i class="bi bi-instagram"></i></a>
                 <a href=""><i class="bi bi-linkedin"></i></a>
              <div class="member-info">
               <h4>William Anderson</h4>
                <Pre>vero omnis enim consequatur. Voluptas consectetur unde qui molestiae deserunt. Voluptates enim aut architecto porro
aspernatur molestiae modi.
          <div class="col-lg-3 col-md-6 d-flex align-items-stretch" data-aos="fade-up" data-aos-delay="400">
           <div class="member"</pre>
              <div class="member-img">
               <img src="assets/img/team/team-4.jpg" class="img-fluid" alt="">
                <div class="social":
                  <a href=""><i class="bi bi-facebook"></i></a>
                 <a href=""><i class="bi bi-instagram"></i></a>
              <div class="member-info">
               <h4>Amanda Jepson</h4>
               <span>Accountant</span>
                Rerum voluptate non adipisci animi distinctio et deserunt amet voluptas. Quia aut aliquid doloremque ut possimus ipsum
      <div class="container" data-aos="fade-up">
         <h2>Contact</h2>
         Contact Us
        <div class="row gy-4">
          <div class="col-lg-6">
           <div class="row gy-4">
  <div class="col-md-6">
               <div class="info-box">
                 <i class="bi bi-geo-alt"></i>
                 <h3>Address</h3>
                  The Smartbridge<br>Hyderabad, Telangana
              <div class="col-md-6">
               <div class="info-box";</pre>
                 <h3>Call Us</h3>
                 +1 5589 55488 55<br>+1 6678 254445 41
                 <i class="bi bi-envelope"></i></i>
                 <h3>Email Us</h3>
                  info@example.com<br>contact@example.com
```

```
<div class="col-md-6">
               <div class="info-box";</pre>
                 <i class="bi bi-clock"></i>
                 <h3>Open Hours</h3>
                  Monday - Friday<br>9:00AM - 07:00PM
         <div class="col-lg-6">
           <div class="mapouter">
             <div class="gmap_canvas">
m2!1sen!2sin" width="600" height="450" style="border:0;" allowfullscreen="" loading="lazy<sup>"</sup> referrerpolicy="no-referrer-when-
downgrade"></iframe>
              <style>.mapouter{position:relative;text-align:right;width:600px;height:400px;}.gmap_canvas
{overflow:hidden;background:none!important;width:600px;height:400px;}.gmap_iframe {width:600px!important;height:400px!important;}</style>
   <div class="footer-top">
     <div class="container":
       <div class="row gy-4">
         <div class="col-lg-5 col-md-12 footer-info">
             <img src="assets/img/logo.png" alt="">
             <span>E-CarStart</span>
            We offer modern Analytics solutions for Electric Vehicles.
              <a href="#" class="instagram"></i class="bi bi-instagram"></i></a>
             <a href="#" class="linkedin"><i class="bi bi-linkedin"></i></a>
           <h4>Useful Links</h4>
             <i class="bi bi-chevron-right"></i> <a href="#">Home</a>
              <i class="bi bi-chevron-right"></i> <a href="#">About us</a>
              <i class="bi bi-chevron-right"></i> <a href="#">Services</a>
              <i class="bi bi-chevron-right"></i> <a href="#">Dashboard</a>
             <i class="bi bi-chevron-right"></i> <a href="#">Story</a>
           <h4>Our Services</h4>
             <i class="bi bi-chevron-right"></i> <a href="https://www.thesmartbridge.com/">Web Design</a>
             <i class="bi bi-chevron-right"></i> <a href="https://www.thesmartbridge.com/">Web Development</a>
             <i class="bi bi-chevron-right"></i> <a href="https://www.thesmartbridge.com/">Product Management</a>
             <i class="bi bi-chevron-right"></i> <a href="https://www.thesmartbridge.com/">Marketing</a>
<i class="bi bi-chevron-right"></i> <a href="https://www.thesmartbridge.com/">Graphic Design</a>
```