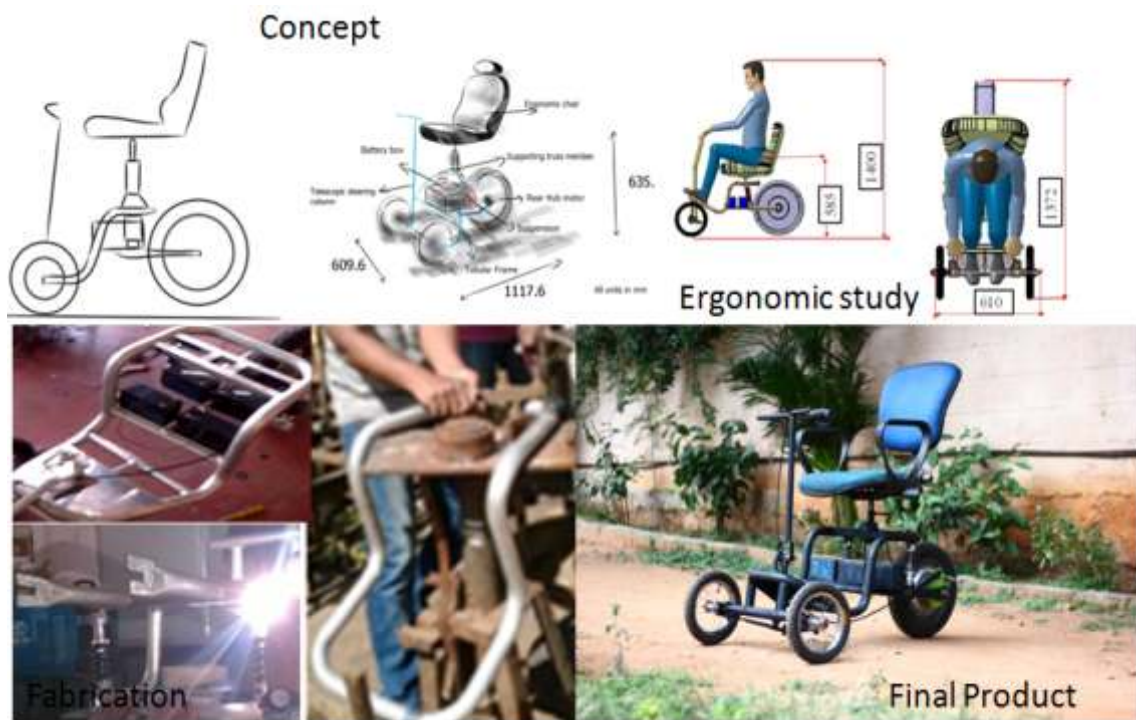


GP1005	Design and Development of Motorised Wheel Chair for Physically Challenged Individuals		
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In India, about 120 million people are disabled with hampered locomotive ability. According to statistics, a significant amount of people suffer from spinal cord and shoulder injuries along with locomotive disability. There is a need for personal mobility for physically challenged persons to be independent in their day to day activities. There are varieties of products available to aid the mobility of these persons. At present in the Indian market, motorized wheel chairs are available but they are very expensive and bulky in size. Looking at this gap, this project was envisaged to develop a compact motorized wheel chair that is efficient, light weight, simple and low cost for Indian customers.

In this project an attempt has been made to provide the target customers with a motorized wheel chair of under 40 kg gross weight which costs around 35,000 INR and is portable. To meet these requirements, simple, skeleton, split frame chassis has been designed which is fabricated from aluminum tubes. For the power train an electric hub motor of 250 watts was utilized which is powered by 3 batteries of 12 V, 9 Ah each providing a range of 7.5 km. Pivot mechanisms with quick release levers were provided for quick foldability of the frame and the seat. Seat belts and calf supports were provided for the safety of the user. Four bar mechanism was used for manual steering. Ergonomically designed seat which can swivel about 360 with adjustable seat height back rest was provided for improved seating comfort which is very much essential for disabled persons. The motorized wheel chair was conceptually designed, modelled and successfully fabricated for full scale for the designed specifications. This product was tested for its functionality, ergonomics and comfort. The motorized wheel chair is capable of reaching a top speed of 10 km/h and has a range of 7.5 km. The prototype has been fabricated at a cost of 31,000 INR. This product can be easily transported in a passenger car.



Development stages of Motorised Wheel Chair: Virtual model and its construction