

# RELIABLE & USER-FRIENDLY TRICYCLE FOR PHYSICALLY CHALLENGED COMMUNITY

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## **Keywords:**

Mechanical Tricycle, Throttle, Controller, BLDC motor, Battery Ultrasonic Sensors, Arduino.

## **Introduction:**

- In the World, there is a unit entirely 100-130 million folks want wheelchairs, however, but 100 percent either own or have means of getting one as a result most of those folks sleep in developing countries wherever wheelchairs aren't out there.
- Transportation is one of the important factors in our day-to-day life, but for normal people, it is very easy to go from one place to another, and this is very difficult for the handicapped person.
- A Handicapped person normally uses a tricycle that works on the chain and the sprocket mechanism is operated by hand. A normal wheelchair is used for handicapping and tricycle users for normal people use hand drive or propulsion or foot pedal propulsion.
- There is a lot of technological advancement, in wheelchair propulsion other than manual wheel turning.
- The main objective of this project is to form an efficient vehicle at an affordable price and by using less effort to propel the vehicle.
- An electric tricycle is a three-wheeled vehicle powered by an electric motor,

## **Objectives:**

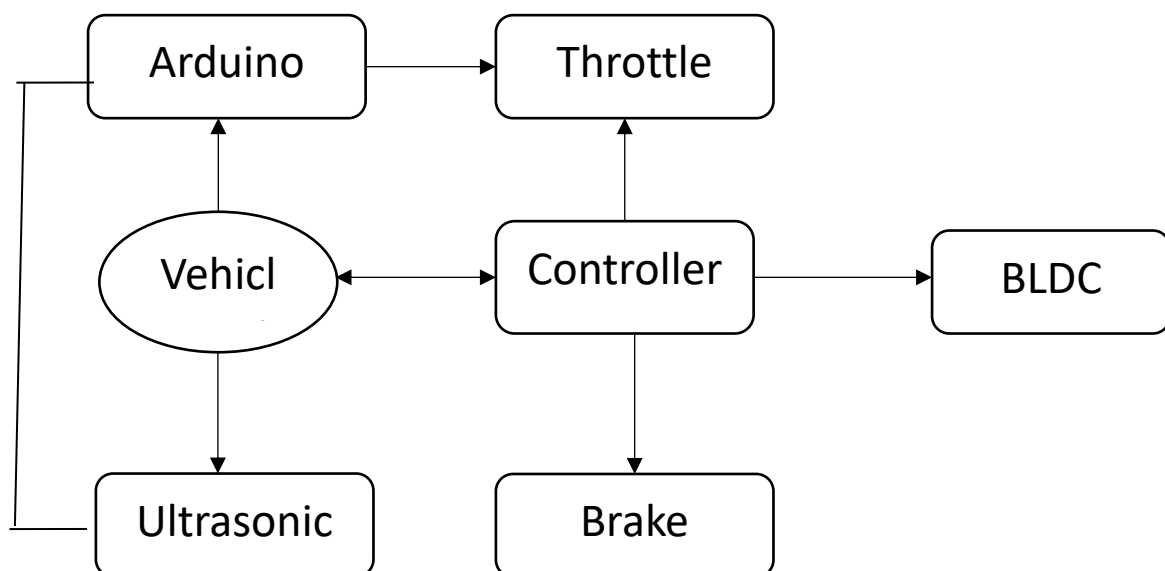
The objectives of the proposed project are:

- To design an eco-friendly, light-weight, less effort, and also affordable transportation machine for physically challenged people.
- With a specific end goal to help the physically crippled individuals we have composed a multipurpose tricycle. The tricycle accessible in the market has a ring or handle to be pivoted for its development.
- An attempt has been made to design and fabricate a motorized retrofitted tricycle for disabled people.
- A model is designed and fabricated that will be effective in providing mobility for persons who have disabilities.
- This model is designed with an autonomous braking system.

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### Methodology:

- This tricycle is proposed for physically challenged people. The tricycle is an electric vehicle with BLDC Motor and a lithium-ion battery.
- It consists of three wheels two on the back side and one on the front side of the vehicle.
- The vehicle wheel is connected to the motor which is fed by the battery power supply.
- The battery is connected in series and supplies electric charge to the controller. The controller is connected with different components like a motor, battery, accelerator, horn, light, etc.
- This tricycle has a feature of an autonomous braking feature.
- The automatic braking system is an Arduino-based mechatronic system. The ultrasonic sensor and camera sensor are input sensors for the microcontroller of the system.
- The working of the system starts as the engine starts, ultrasonic sensors and camera sensors start collecting the data as well as transmitting it to Arduino to take necessary actions.
- Storage carrier



**Results & conclusion:**

- From this project we conclude that this is the best suitable vehicle for physically challenged people. For the propulsion of the wheeled vehicle which may be provided the straightforward movement of a tricycle over an existing vehicle with the assistance of various mechanisms and combination of technology which can have a larger advantage to the physically disabled person to propel the vehicle.
- From the above conclusion it is decided that use of lever power tricycle is suitable for handicapped person and mechanical work is most comfortable for use.

**Future scope:**

- In Technical Sort of Way:
- Alternator can be used to charge the battery.
- Gear system can be used to increase the speed of the tricycle.
- It can be foldable by using different types of linkages and nut and bolt also.
- Clutch can be used to engage or disengage the connecting rod.