India Burse
(CpE)

Tramia Johnson
(CpE)

E-Trike

Akinyemi Morakinyo
(EE)

Ayana Walker
(EE)

Background:E-Trike and Why

- A comprehensive solution for Friendly Transportation
- Affordable
- Eases stress for commuters of older age and people who don’t balance on a bicycle
- Comfortability

Problem Definition

To successfully provide a source of friendly,reliable, clean energy and mainstream source of transportation

2018-2019 Year Goals

- Implement a solar panel
- Incorporate a lithium battery
- Add manual power
- Finding the perfect body type that requires minimal balance
- Elevated seat

Long- Term Goals

- Optimization of parts for cheaper prices
- Improvement of framework for comfortability
- Inserting removable and reusable wheels
- Compatibility with public chargers

Rules and Regulations

- Code of Federal Regulations
  - 16 CFR 1512 "FEDERAL HAZARDOUS SUBSTANCES ACT REGULATIONS REQUIREMENTS FOR BICYCLES"
- The Consumer Safety Product Commission
  - Does not require a license or registration
  - wheels at least 16 inches in diameter
  - a source of power no more than 20 mph.
  - Class 2 Bike
- United States Patent and Trademark Office (USPTO)
  - The E-trike must not infringe on the rear axle Tricycle Apparatus pattern

Design Requirements

Battery must weigh about 15 pounds

Trike should weigh between 50-65 lbs

Compatible to public charging stations

Trike must go less than 20 mph

Previous Design

Current Solution Design

Smaller rear wheel

Use of lithium battery cells

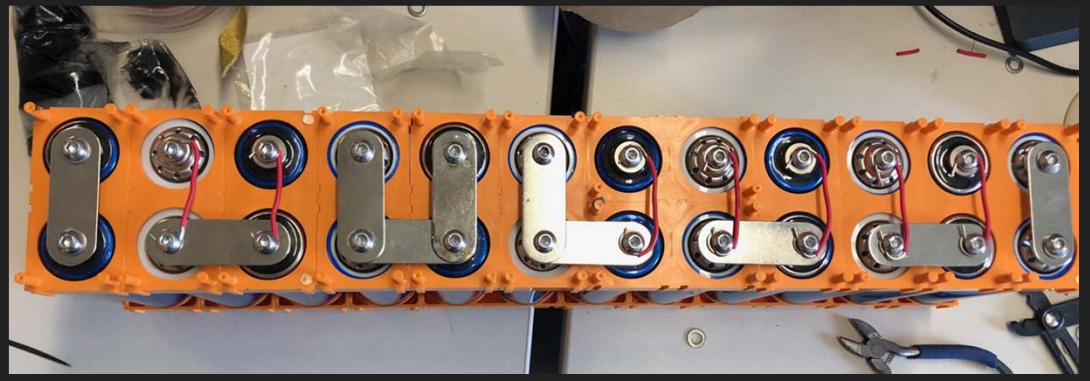
motor and pedal operated

Elevated seats

Installed motor controller

Implementation Process - The Motor and Battery

- The battery is 12 in series 2 in Parallel
  - Supplying 40 V to the motor, capability was 48V
- Motor controller connects to the motor, LCD speedometer, brakes, and throttle



Implementation Process - The E-Trike

- Elevated Seat about 3 inches above original height
  - Placed an aluminum 2in block supported by steel brackets under seat
- Added bike chain to incorporate manual power

Future Plans

- Optimization of parts for cheaper prices
- Improvement of framework for comfortability
- Inserting removable and reusable wheels
- Compatibility with public chargers
- Implement a solar panel
- Implement a portability feature
- Adapt auto adjusting body type that requires minimal balance

Conclusion

Initial Goals

- Replace the microcontroller
- Raise seat
- Include a solar panel
- Compatibility to public chargers
- Implement a lithium battery

Achievements

- Included a lithium battery
- Multi-powered Electric Trike
- Raised seat

Questions???