

### Quick Recap of Our Meeting:

Things have pivoted, after some consideration we decided we should opt for motors with a decent torque and power output (min 200 W each), a few options were suggested and the main ones are two motors that output 250W each, but require a larger amount of continuous current to run through them (10-15A). Our previous model included a L298N motor driver to control these motors, however it has a limit of 2A continuous current. The highest power output motor that we found that ran below 2A was a motor with 60W output and it wasn't geared, meaning its torque probably isn't the best either. We then had a discussion about possible motor drivers, and our final choices came down to VNH2SP30 MOSFET based motor driver and BTS7960, both are amazing motor drivers (with the VNH2SP30 having a greater efficiency but being limited to 16v) and decided to opt for the BTS7960 motor driver because it is cheaper to acquire, is compatible with high current systems (rated for up to 43A), and can take anywhere from 6- to 27V power input, which is great in our case because we can use either the 12V or 24V battery compatible motors therefore giving us more options when we put all details and financial constraints in place, and then place our motor order. The motor that we will buy after considerations is the HYDDNice 24V DC Permanent Magnet Electric Motor Generator 250W 2750RPM Electric Motor Brushed for Wind Turbine E Scooter Drive Speed Control found in Amazon and it has a price of about 37 Dollars per unit.

### What is There to Do?

Currently we will have to wait for more funds to come our way to place our motor order so we will have to hold off on that. However we do know the motor that we wish to acquire and its dimensions will be placed below (along with our main vehicle dimensions) which means that we can commence coming up with adapters/holding systems for our 2 motors in the front wheels assembly.

1. To our design engineers: We need your drawings/CAD renditions\* of a system\*\* to hold our motors that fit the dimensions constraints of our car. This is to be ready and presentable by next meeting in wednesday, July 27 2022, where we will show our ideas and take the best aspects to come up with a good motor mount and wheel system within the next meeting. Also please notify in the GBG Discord ASAP if you will be doing this so we know who will be contributing and can prepare for the meeting appropriately! Thanks y'all.

\*Those who have any CAD software are encouraged to use it, those who do not have CAD are encouraged to create drawings with clear and clean dimensions, and different views. Still we appreciate and encourage as many designs as we can to boil down to the best possible system we can after discussion. Remember more ideas are more possible good features that we can integrate in our final motor mount design.

\*\*Also wheel dimensions have not been given because we are still flexible on that so feel free to design motor setup assembly compatible to any wheel of your liking as long as the wheel meets basic space constraints and is good for the setup (ie. not too thin, not so big that it won't fit or can alter the balance of the vehicle to fall backwards etc...) when presenting just include in your description what wheel your assembly is meant to be compatible with and share with the group in our next GBG Doc. If you don't have a wheel in mind, use the wheel dimensions provided (all vehicle dimensions are in the GBG discord chat as pics but I will also update them to this doc).

2. **For all engineers:** Some of our officers will be meeting at a meeting with alcohol with important figures in the college, and would like to have a prototype of our current car strategy available by the 30th of July. Please state your availability to work on this prototype **ASAP** in the GBG discord so we can rush this endeavor and have an aesthetically pleasing front wheel drive system designed and properly operable by the target goal date. We already have the software for its control and extra L298N modules, AA batteries, and MPU 6050s gyr/accl sensors, 12V motors etc... so most of the work will be in designing a vehicle to fit our components, making sure it has a sturdy and aesthetic build, and making sure its drive response is decent. The build can be made of balsa wood which can be obtained at hobby lobby or home depot.

#### **Notes and Agenda for Next Meeting:**

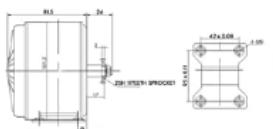
**For everyone:** Meeting is planned to include engineer's design ideas and small presentations of their models, and discussing them to decide which features are best in each. This will be done for all ideas and models available, and then we will come up with a list of features and general ideas of our motor/wheel/mount system that we will work on and create. After this, we will discuss what battery we want to acquire so we can do this same work but for a battery and circuitry mount system at the base of the stroller and have it ready.

The following does not require attendance of everyone unless they want to be part of this part of the project. For our software and device systems engineers, we will hold a small chat to catch them up on the BTS 7960 Motor Driver and lay out goals and deadlines for modifying our circuitry layout, and creating the first control arduino code for our system which will be uploaded to our Github repository\*.

\*If you are contributing to the arduino code and don't have contributor access in our GitHub let me know in the discord or DM so I can add you as a contributor to this project. I'll just need your email or GitHub username.

## Dimensions and Specifications:

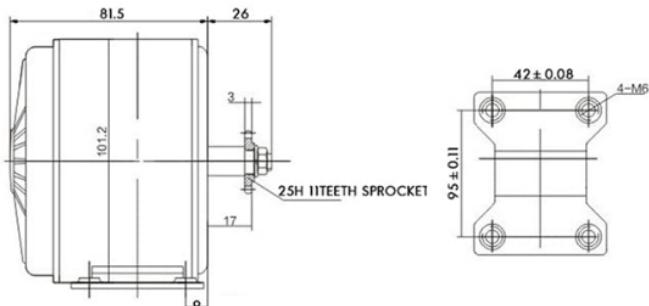
Dimensions



DC Brush motor

Model	KRMY-1002
Package Weight	2500g
Power	250W
Current	13.7A
Voltage	24V
Sprocket Type	25H 11T
Torque	0.87N.m
RPM	2650RPM
Motor Type	High speed

## Dimensions



## Motor^

### High Current Motor Driver Module BTS7960 Specifications:

- Input voltage: 6V-27V
- Model: IBT-2
- Maximum current: 43A
- Input level: 3.3-5V
- Control mode: PWM or level
- Duty cycle: 0-100%

### High Current Motor Driver Module BTS7960 Applications:

- Current diagnostic
- Slope adjustment
- Dead Time generation
- Overtemperature, overvoltage, undervoltage, overcurrent protection
- Short circuit protection



## BTS7960 Motor Driver^



\*I'll be updating a more clear depiction of the conglomeration of our dimensions but you can access these measurement photos and more measurements in the GBG discord. Please obtain your dimensions from there if they are not yet uploaded here in a drawing. If some dimensions are missing or you have questions ask me and I'll obtain them ASAP/ answer your question.

Vehicle^-----