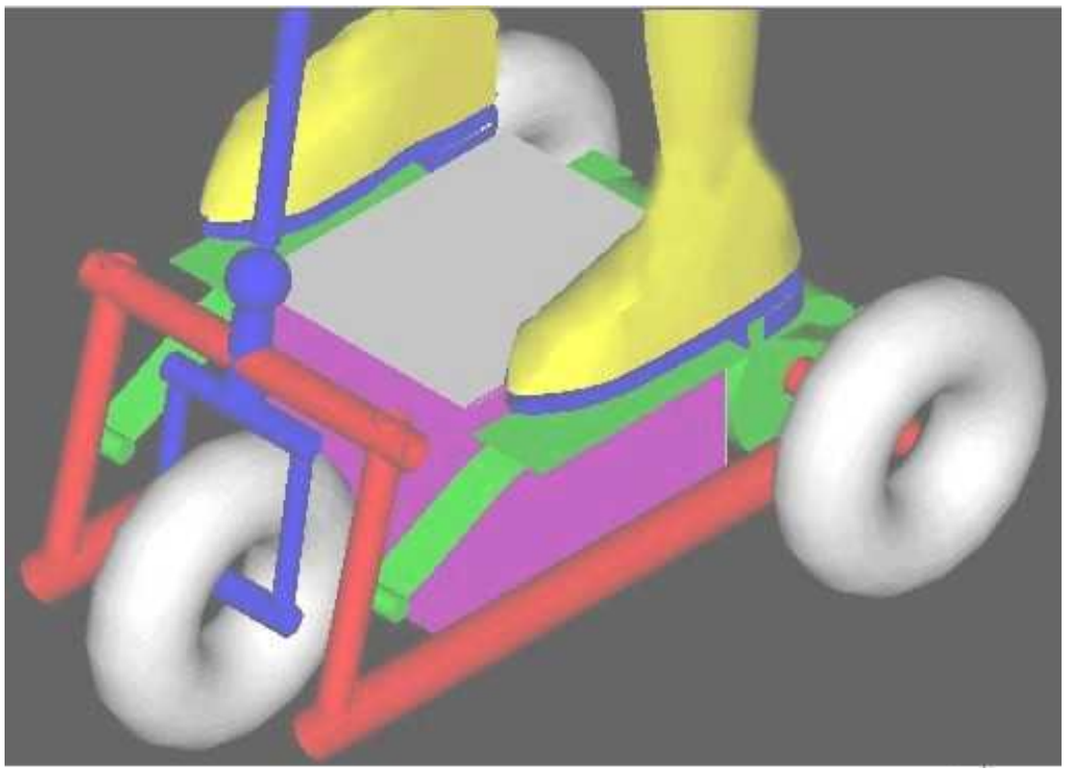
THE SMALLEST TILTER

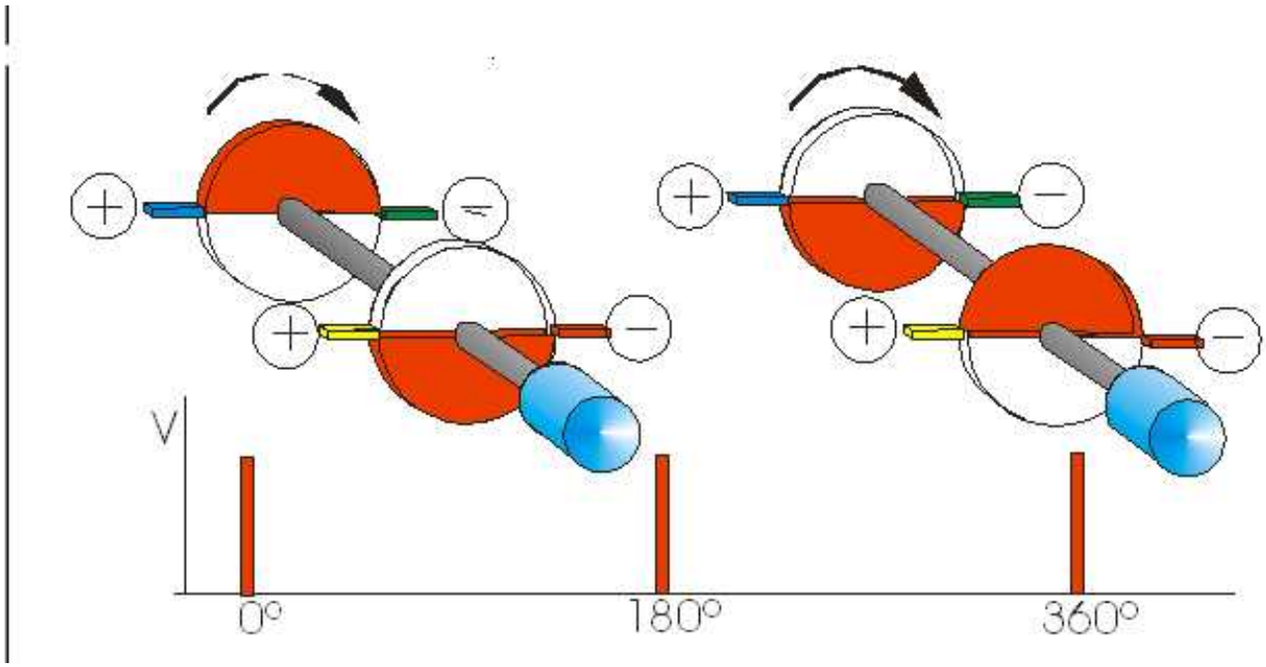


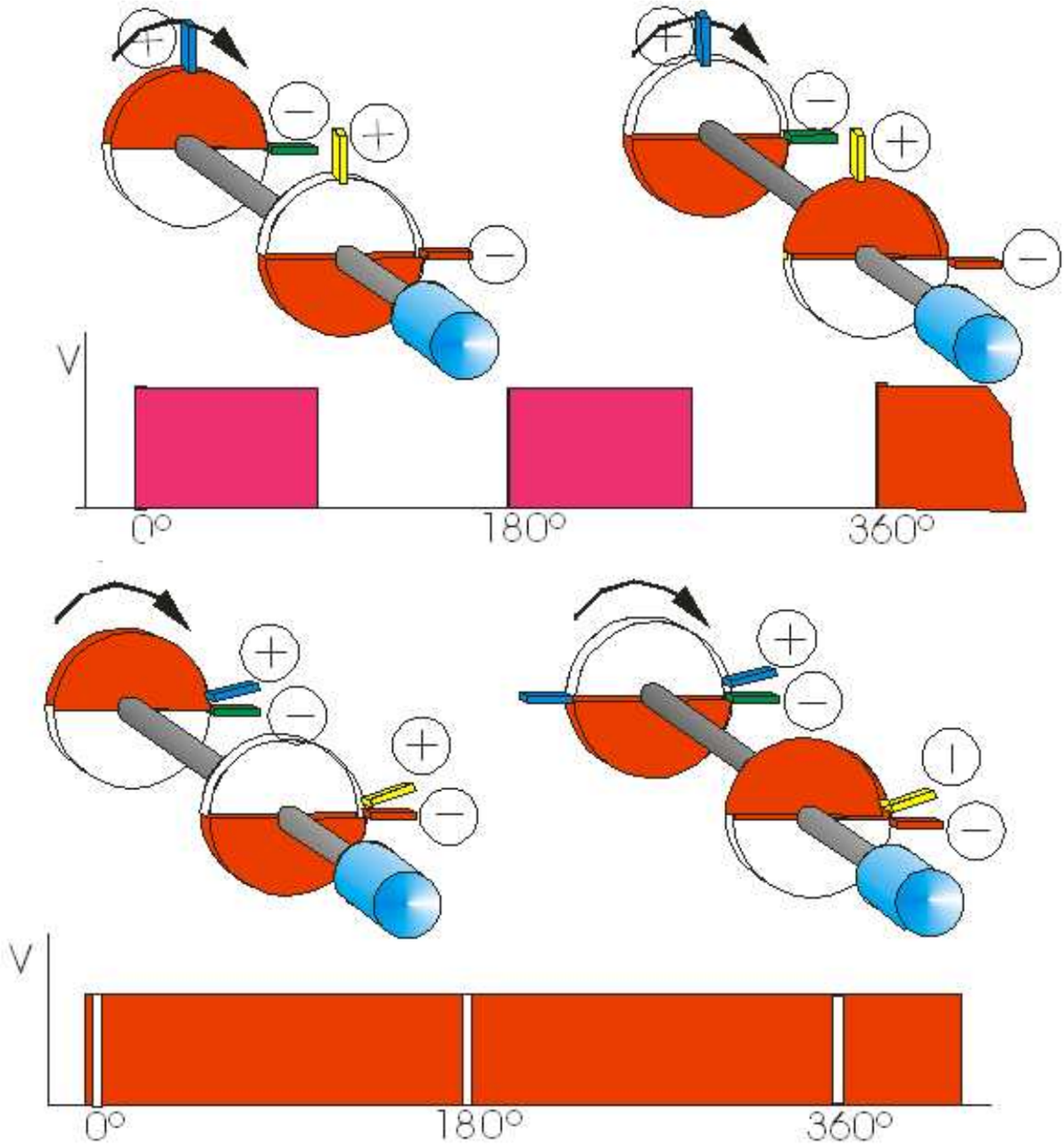
This is an exercise on how small a tilter could be made.
Probably this is not the smallest possible, but maybe very close to it, still being a practical vehicle that could be used in real traffic.
Although this would be probably considered as something special and allowed in sidewalks and pedestrian streets. I would like to know what has happened and will happen to a similar wehicle: The Segway.
The Segway is a clear demonstration on how engineers and designers prefer a "High Tech" solution to some problem that could be solved may be better with extremely low tech.
The vehicle I describe here does everything that the Segway can do, including turning 360º over its center.
The weight wasted in gyroscopes is used here more rationally in using an enormous battery. In fact it is a standard car's battery.
So this TTW can be built by yourself in your backyard at practically no cost.
So the vehicle is built around a standard car's battery mounted on a steel tube frame, using fat tire small wheels, easy to find, for prymary suspension.

**The driver stands on two small platforms fastened to leaf springs,
The simplest "Make it yourself" type of spring.
For the speed control of the motor, instead of using electonics I use here a purely mechanical rotary switch probably of much higher electrical performance than the typical electronic controller,
It also could be homemade using an electrical toy motor and a brush conmutator.
It would probably be very sensible. This feature becomes very important for this vehicle.
Leaning sideways does not need any control. The driver would do it unconsciously with the body.
As for accelerations and deccelerations, the human body is not well prepared to counteract them, with only the lenght of the foot as a standing base.
This is why we need here a very sensible and fast reacting contol for the main motor.
It you want to accelerate you incline your body and with it the steering stick. The more you incline the more torque goes to the motor and viceversa, the more you incline backwards the more you brake. The sensibility and speed of response must be perfect if you do not want to fall forwards or backwards. We assume that due to the small speeds in this vehicle the braking would be only be electrical means.
The final stop would be made by putting your foot on the ground.
I believe that this system has been tested before, but I cannot find where.
Can somebody help?
During the Sevilla's Expo 92 there was a small Company trying to sell small motorized scooters,
Just like child's scooters with no seat and a 25 cc engine.
I consider myself a good driver of anything, but I was unable to drive this vehicle.
It has a nasty tendency to roll back when accelerating.**

Due to the fact that most of this vehicle I propose is just battery there is no doubt about its performance.
This is why I show a rather stupid drawing of a guy in a road supposedly very far away from home.
The steering shaft is connected to the steering long column through an universal joint and the control signals are sent to the motor controller by proportional voltages sent by potentiometers at the steering column.
Or it could be better to install the motor driven mechanical controller directly on the steering column.

ROTARY SWITCH AS DC MOTOR CONTROLLER





You can vary the current through this high speed rotary switch or conmutator simply by moving first the blue and the second yellow brushes about 180º.
The electric motor needs enough power to move the rotors against the friction of the brushes.
The (+) & (-) signs do not mean conections to a the poles of a battery but only that these brushes are connected to one particular wire.
You can see that with a proper design you can get a nearly 100% of current variation, A properly designed conmutator is much

more efficient than a solid state controller.
You can control heavy currents without any need of cooling. And using very little power.
It would be easy to make a mount for the blue and yellow brushes that when rotated through 180º, varies the current throughput from close to zero to close to 100%.
The real controller would be much simpler than shown. Imagine the two rotors glued together and the blue and yellow brushes converted into one single brush. And also the green and red ones,
Everybody assumes that electronic control is always better than oldfashioned electro mechanical ones.
This may be a case where this is not true.
One well designed capacitor would improve the smoothness of the system but keeping the reaction velocity.

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