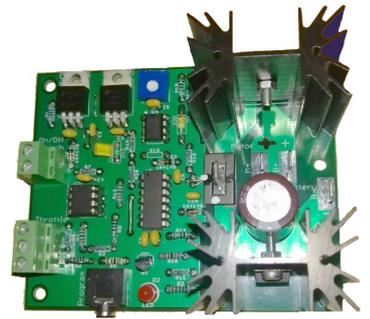


Kitset controller – and the innovation category

(for standard 350W motor kit only)

The kitset construction and programming creates a controller designed to replace the one in the standard 350W electric bike kit. Building the kitset up from scratch is useful in learning to assemble electronics hardware and programming. Teams should be rewarded when it deliver up to 20% more power. This is a motivation for many teams!



Kitset

Cost \$30 (order from your Regional Coordinator)

The kit includes all components, circuit board, instructions, etc.

Development stages

- **Teams assemble the kitset controller at school**

Instructions are supplied with each kit. Teams will need a fine tipped soldering iron, solder and side cutter pliers (Nippers).

- **Controller workshop to programme the Picaxe microcontroller**

At the workshop teams will work in small groups (2 or 3) to explore some fun and enabling basic programming steps showing how the Picaxe may be used to control LEDs , motors and respond to sensors. No prior knowledge is needed and the programming is almost in English, simple and easily understood.

The learning steps lead up to up to taking the input from their own throttle and outputting 100% of the power to the motor (using Pulse Width Modulation or PWM).

At the end of the workshop teams end up with the Picaxe in their controller able to deliver from zero to full power and can see the fruits of their work when they test the output on an oscilloscope.

For the workshop the teams will need:

- A laptop with the Picaxe programmer downloaded from <https://picaxe.com> - Software downloads. Use Program Editor 6 for Windows or AXEpad for Apple devices



- Bring the throttle from their 350W standard electric bike kit
- The Picaxe chip (IC) from their Controller Kitset
- The controller already soldered up (preferable but not essential)

Note: It may be necessary to load a small driver for a USB-serial converter at the workshop so please come along with any permissions that may be required to do this.