Once the bike is off the ground the rear wheel can be used to turn a dynamo to produce electricity. Different Pedal-Generator systems use different dynamos. The Bicycology Stroud system uses an old Boat Dynamo (rescued from a skip), which was easy to fit to the old mounts for the friction unit of the training stand. Most pedal-generators seem to use small motors which will produce electricity if they are spun in the direction opposite to that which electric scooter motors, which cost ~£30 on Ebay). Usually such motors have a thin spindle with the rear wheel of the bike. On the boat dynamo we use, the casing of the motor itself spins and this provides a nice large area for the rear wheel to run on.

appliances we want to run (on either 12 V DC or 240 V AC). The first of these is a Bridge Rectifier (under £5). This converts the AC Voltage into DC. If you had a DC motor/dynamo you'd want a Diode here instead, to prevent current from travelling into the motor and making it spin (~£2). The rectifier is the small grey box in the pictures above (most clear in the central picture).

Electrical appliances generally like to receive a steady current, but a pedal-generator will produce varying amounts, not to mention spikes. To smooth the voltage out we use an old Car Battery (a new one will cost upwards of £50). This works OK for what we do, but isn’t ideal. It’s heavy, has much more capacity than we need, and must not be tipped over, otherwise acid will spill, or short-circuited (a direct link between the positive and negative terminals), which would make it explode. It’s also important not to overcharge such batteries.

The Pedal-Generator system is based around a second-hand and slightly battered Dawes touring bike, which is used to carry all the kit when needed, and as a primary means of transport the rest of the time (ideally, everything would fit on the pannier rack on the back of the bike, but at present some items are carried either in a trailer or rucksack).

The dynamo is 24 Volt AC, which means we need some extra parts between it and the appliances we want to run on (either 12 V DC or 240 V AC). The first of these is a Bridge Rectifier (under £5). This converts the AC Voltage into DC. If you had a DC motor/dynamo you’d want a Diode here instead, to prevent current from travelling into the motor and making it spin (~£2). The rectifier is the small grey box in the pictures above (most clear in the central picture).

The system works by hoisting the bike off the ground using an old Training Stand (‘Turbo Trainer’). These stands are used by racing cyclists to train when weather forces them indoors. Bicycology Stroud obtained one from Freecycle (they are available second-hand from Ebay for around £20 including postage), or you could build one yourself. The advantage of the stand we use is that it can be folded up and attached to the pannier rack with a bungee cord, allowing us to cycle around and then set the system up quite quickly when we stop.

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