Hi folks. Here is a picture of a good friend of Ken and Tim, Bea. She can't ride a bike, but had the guts to join us on the Ipswich Skyride on the trike, built for her, for that occasion. Designed and built by Ken. It was a great day, enjoyed by all. We're very proud of Bea! All the very best. Tim”, England

Buddha trike for Burning Man

"Here's a pic for your gallery. A little different then what you normally get I'm sure, but I figured, "What the heck. John."

"Here is a new pic of my build with new paint job. Looking at making a trailer for it now! Cheers, Higgy7511"

Cool Quad!
"Hi folks. Here are pictures of the bikes we rode at the Hillingdon Skyride. A great day was had by all. The Force was strong with these people. It was their destiny to get out and enjoy their bikes! Their thoughts betrayed them. They were having fun. The Force is strong for those who take part in the skyride. Enjoy. All the very best, Tim and Ken", England
*Vigilante style bike chopper from Germany*

Name: 45° by Y-CUSTOMS  
Builder: O. Weis & W. Brendel  
Location: Germany

"My trike! I used tips from your plan and tried to copy the catrike700. It came out well! Thanks, Patrick Mork"
"Brad & Kat here is my two person pedal car, "The Side Kick" that is built from PVC pipe. It's another of my collection. It has a chrome plated pig with angel wings for a hood ornament, and a large bulb horn from www.bonedrymusic.com.

It is a blast to ride, except up hill! Best regards, Bob Hitchcock."

"Kubota Orange Wildcat in the fleet." Built by Huggy2, Kitchener, Ontario"

"A bike I made recently for fun and to turn a few heads. I ride it around the shops with my boys and it always creates interest. Chris McPherson, Australia"

Lots of help & advice in the Builders Forum!

Pedal Power!
The mind of an inventor is never at rest. You know what I mean! You find yourself sitting on the beach relaxing, and although you may look idle, your internal gears are going into overdrive as you design your next crazy contraption in every detail. Grab your notepad and get those ideas down on paper so when you are back at home, you can turn them into reality.

This is the story of an idea that came about while swimming in the lake at camp. I have always enjoyed free diving, using only a face mask and find to dive down as far as I can, sometimes to 50 feet, depending on the color of the lake water. So, as I was exploring the depths for long lost treasures, I had a thought - pedal powered free diving submarine! Hey, why not? We have human powered vehicles for the road, the trail, on top of the water, and even in the air, so why not underwater? Yeah, good idea!

Later that night, I grabbed my sketchpad and came up with this contraption that looked kind of like a lowracer without any wheels and a propeller in the front. The plan was to use leg power to drive a propeller that would propel a recumbent vehicle with the same type of steering used on an aircraft, a tailfin and wing flaps so that the vehicle can dive, steer and roll while moving underwater. Well, that was the plan.

Since my "aqua-bike" was only a prototype, I didn’t use sealed bearings or even a proper gearbox, just a scrap pair of cranks, bottom bracket and some

Some metal tubing, bicycle parts and a large model aircraft propeller

The transmission system is exactly like the one used on an egg-beater

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other garage door opener bits to change the angle of
the transmission by 90 degrees to drive the front
mounted propeller. In essence, I made a giant human
powered egg-beater type transmission with a 16 inch
wide model airplane propeller mounted in the front.
The gear ratio was about 5:1, so the prop would be
turning at about 300 RPM when pedaling at 60 RPM.
The large 50 tooth chainring drove a garage door
opener sprocket at 90 degrees by letting the teeth
mesh together. This was pretty crude, but enough to
see if the prop would work.

I had no idea if a large model aircraft propeller
would even work in the water, nor did I know how fast
it would need to spin, so I just used the parts I had to hack the thing together. The only preliminary tests I did
involved twisting the propeller by hand while holding it under water, and it did seem to offer a great deal of
propulsion even when turning it by hand.

Having bare sprocket teeth grinding together underwater was certainly suboptimal, but the point
was only to see if the propeller would have enough thrust to move the vehicle. If I could pedal through the
water and actually steer this thing, I would then move on to a sealed 90 degree gearbox and a partially
enclosed body shaped like a fish for maximum drag
reduction in the water. I figured that if I could get
moving even at walking speed, the fins would allow me
to dive down with my mask and then ride back up for
air in a more efficient manner than doing so with
diving fins. Later, I could add a small air bladder to
allow a few extra breath fulls of air when riding around
at the bottom of the lake. It all seemed so simple on
paper!

The seat was mounted behind the cranks just like
a typical long wheelbase recumbent bike. A pair of
plywood boards would become the seat and offer a
little bit of extra flotation. I knew that I would also

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need some kind of releasable floatation or launch system as the propeller would need 3 to 4 feet of water to start and have to be kept off the lake bottom when starting out.

If successful, the final version would be partially enclosed and have its own neutral flotation system so that it would bob just below the water line while not moving, allowing slight forward momentum to bring the vehicle into a dive.

The completed human powered submersible Aqua-Bike looked more like a pedal powered flying machine as it had a tail rudder and a set of independently controlled wing flaps. With this configuration, the same maneuverability as an aircraft would be possible under the water as long as the propulsion system worked. The under seat steering was very simple; move the handlebars left or right to turn the tail rudder and then push or pull each handlegrip to control the right and left wing rudder. I was excited about being able to dive and then pull some barrel rolls under water while enjoying the lake bottom scenery.

So, the day finally came where I had a weekend to take the Aqua-Bike prototype out to the lake. I strapped a few empty water jugs to the frame for buoyancy and then waded out into about 5 feet of water. It took a few attempts at mounting the water jugs so I could actually get onto the bike before it began to sink, but eventually I was in position and ready to engage the top secret propulsion system. Would I move forward or sink to the dark cold depths and never return? Would I gain enough speed to effortlessly dive to 50 feet and perform all kinds of flying-ace maneuvers or would I plummet to the sandy bottom and crack the propeller? Either way, it was going to be fun! Here we go...

So, I gave the pedals a spin and to my surprise, the Aqua-Bike began to move forward. Instantly I realized my first major design flaw - having the propeller mounted at the front. I mean...DOH! What was I thinking? Obviously, the propeller was now tossing high speed water right at my body, so propulsion was very minimal. Considering only about 5% of the thrust was left over after washing across me, the propeller was doing a very good job in the water. I managed to get the craft moving at a speed close to walking. Ok, so now I was just a head trolling along out of the water with a massive plume of chopping water in front. Would this...
thing do its duty and take me on a journey to the bottom of the lake?

I pushed the two wing flaps forward, into the dive position and nothing happened. Well, it actually slowed me down a bit, but I wasn’t diving yet. Another design flaw. Wing flaps need to be much larger to be of any use. The rear tail fin worked well though, and I could steer left or right. Knowing that the wing flaps did not offer enough drag to create a dive, I released the flotation devices (plastic jugs) and tried again. This was no easy task as the 25 pound bike wanted to drag me to the lake bottom before I could get into position to pedal. It took a few attempts (end recoveries) to get moving without the flotation devices.

Moving along without the flotation device to hold me up, I could not keep my head above the water! I began to sink right away, but did prove that I could in fact steer right, left, up, and down and even tilt into a barrel roll.

Unfortunately, I sank to the bottom 20 feet down before I could really test anything, but the general concept seemed to work. With a rear mounted propeller, sealed gearbox, larger flaps, and a fish shaped fairing, I should be able to create a diving vehicle that would easily outperform any diving fins. Add a small oxygen tank into the mix and the human powered sub would be an amazing vehicle for making extended dives down to the safe 30 foot mark.

I have not experimented in water crafter ever since this prototype was made in 2003, but do plan to try again someday. I want to create a human powered submersible, as well as an amphibious trike someday, but until further notice, I am going to stay on dry land. Talk to ya later matey...arrg!

Send us a picture of your completed handmade bike: gallery@atomiczombie.com

Please — Send one picture per bike, no larger than 2MB in size, .jpg format is best.

*** Don’t forget to include your name and the country where you live. ***

The gallery is updated every week. Looking forward to seeing your bike creations!

~ KoolKat and RadicalBrad