



Transcription of Enterprising Australians video Sam Mitchell – Homemade Solar Bike

The video for this transcript can be found on the Questacon YouTube channel at: <https://www.youtube.com/watch?v=ban9ZhrCr0I>

Transcription from video:

[Image appears of Josh and Sam in a bike shop in conversation]

Josh: Hey folks, it's Josh from Questacon and I'm here with Sam Mitchell, maker, tinkerer, solar enthusiast and bike rider.

[Image shows Sam riding his bike along The Canning Stock Route]

Sam, you tackled one of Australia's harshest tracks, The Canning Stock Route on a solar powered bike. How many K's was that?

[Image changes back to Josh and Sam talking in the bike shop]

Sam: About 1800 km of really interesting riding and maybe 5000 trip total.

[Image changes back to a montage of Sam's trip throughout The Canning Stock Route (desert)]

The first 4000 was main dirt and main tar and for that 18000 or 19000 km of interesting. I think there was about 200 of like, 2 wheel driveable dirt roads.

[Image shows Sam riding his bike along a footpath in city environment]

Josh: Sounds like a pretty tough time, and this is actually the bike that you did it on?

[Image changes back to Josh and Sam talking in the bike shop]

Sam: I had this bike, it's an electric fat bike

[Image changes to a photo of Sam's bike and his trailer carrying solar panels followed by photos of a deconstructed trampoline frame]

And behind this I towed a trailer. The trailer and that frame is all homemade, out of an old trampoline frame.

[Image shows Sam riding his bike along road in the desert]

The first few prototypes were all three-wheeler trikes. The first one was like a kids' petrol lawn mower powered go-cart. But instead of having a lawn mower motor and some go-cart wheels,

[Image changes to Sam working on his bike]



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it had some kids' bike tyres, some solar panels that I made out of old windscreens,

[Image briefly changes to a 'selfie' of Sam and his bike before changing to an image of the motor on his bike]

A cheap motor from China and some old lead acid batteries.

[Image changes back to Josh and Sam talking in the bike shop]

And then from there I was like 'this is cool, it's quite cheap... let's make another one, a better one. And then kept doing that for a while.

[Image changes to Sam's point of view while riding in the desert]

Until I was ready to make the one that ended up going around Australia. On this bike everything had to be stronger, it had to be really off-road capable. I was kind of more conscious about weight because weight then becomes a really, really big penalty,

[Image changes back to Josh and Sam chatting in bike shop]

that both you want to everything to be strong, but as you add more weight to the setup, there's more force on everything and everything wants to break more.

[Image changes to Sam repairing his bike in on a dirt road]

Josh: You mentioned on the road that you had to do some repairing.

Kind of, as you went because things would break.

What were some of the things that actually kind of gave up?

Sam: The trailer frame cracked in a couple of places a couple of times. So I had this really dodgy bush welding setup. I effectively just had a length of fencing wire to act as a bit of a resistor.

[Image changes to Sam talking to camera in the bike shop]

I varied the length of that piece of wire to vary the power that I was getting at my little stick electrode and carried a piece of welding glass which is a square about this big

[Image changes to Sam's point of view riding through the desert]

And that got me through several hundred km of corrugations sometimes to the next place.

[Image changes back to Josh and Sam talking in the bike shop]

Josh: Did you ever want to give up, or turn back, or quit?

[Image changes back to Sam riding through the desert and Sam camping]

Sam: Occasionally at the start I was ready for an excuse. Bail out isn't always an easy option, like after a week in, the only way to get back out is to ride back. But after I kind of got used to what it was like being on the track, got used to it as a lifestyle, I definitely didn't want to quit after that.



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Josh: What are you doing with yourself now?

Sam: I'm studying engineering; renewable energy, which is this hybrid between mechanical and electrical and some solar panels.

Josh: Why is solar so important to you?

Sam: Climate change is big and scary and energy is really nice,

[Image changes back to Josh and Sam talking in the bike shop]

And if we're going to keep having energy – and energy is really nice – we're going to have to do something.

[Image changes to Sam filming himself after just completing The Canning Stock Route]

I appear to have just done the Canning Stock Route on a solar bike! (giggles)

[Music plays and the image changes to the Australian Government, Questacon and The Ian Potter Foundation logo and text appears: Questacon Smart Skills Initiative, Enterprising Australians, Developed by Questacon, #questacon, www.questacon.edu.au]