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Motorised Cooler

My stakeholder (Steve) wants to be able to move the chilly bin back and forward from the clubhouse to the caravan easily when we are at the lake.

Evaluating practical techniques and processes to determine their appropriateness for use in making a prototype

My scooter will have the batteries at the back and be held by a steel brace going over the top. My stakeholders and I decided I should extend the frame to allow more space

I could attach the steering wheel by building a boss kit or I could use washers. I decided that washers would be more effective.

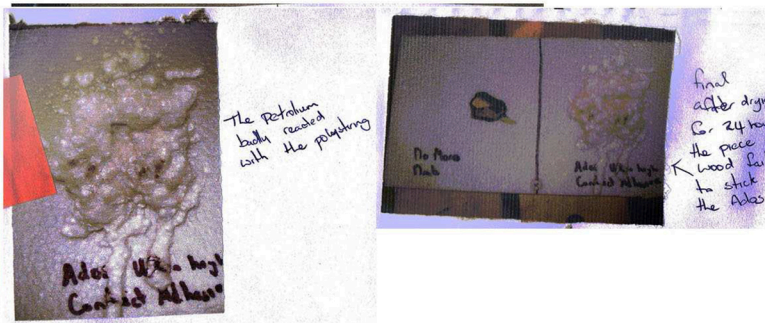
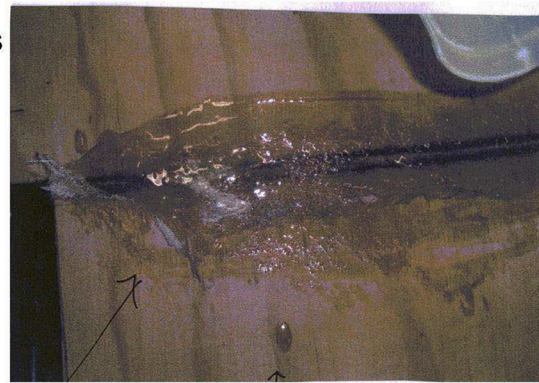
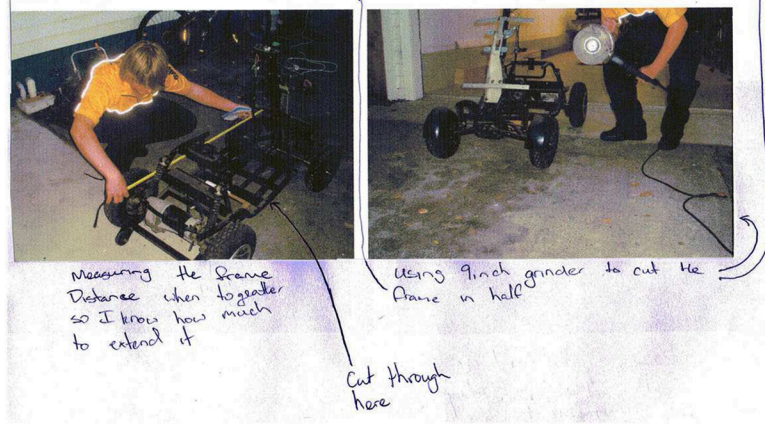
As the base of the scooter is not flat, I put two slits in my plywood chilly bin base and splashed some water on it so I could bend it into place. Once it had dried, I put a coat of fibreglass over it.

I did a test to see which glue would work the best to stick polystyrene to wood. When I used Ados, it reacted with the polystyrene. This is because it is a petroleum based glue.

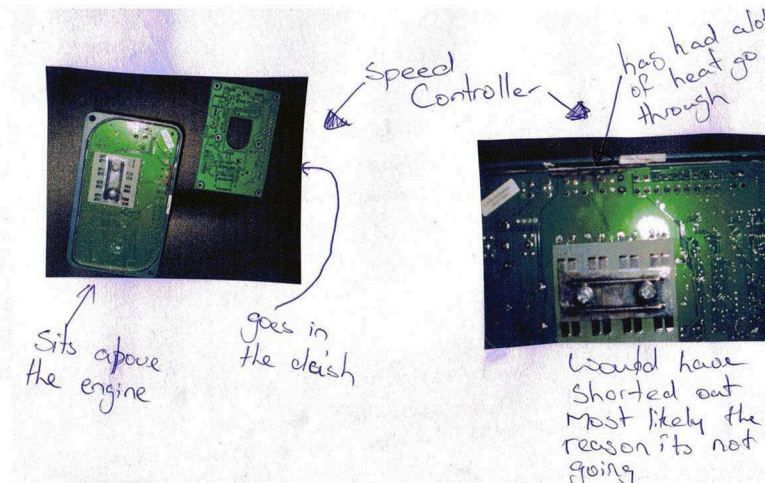
Using evidence from ongoing testing and stakeholder feedback to inform the making and the trialing of the prototype

After talking to Steve and also looking at what the creator of a go-cart motorised chilly bin had done, I decided that the thickness of my steel tubing should be 2.0mm (as opposed to 1.6, 1.8, 2.5) as it will be strong enough but also light enough.

I stripped the scooter to test the engine and the speed control with the help of one of my stakeholders, Jarrod (an electrician).



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Using evidence from ongoing testing and stakeholder feedback to inform the making and the trialing of the prototype (Continued from previous page)

Jarrod and I tested to make sure the engine will go if powered directly from the battery. # When weight is applied to the back of the frame, the shocks compress too easily and the battery holder hits the engine. My stakeholders and I decided the best solution was to raise the rear suspension by cutting off the shock lifting the back up and welding it back on

I did some testing to work out which placement option will be the best for the frame extension



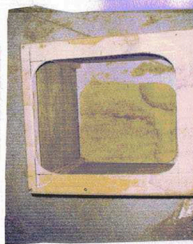
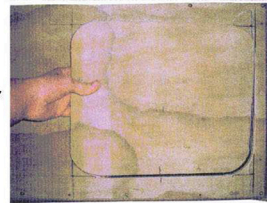
finding which placement option will be the best up front half was



This week I plan to make a mock up and build a wooden base for my chilly bin. I completed a paper model of the front then projected it on to a full scale model of the wooden base. # I tested the electronics and have isolated a few problems – thermal outback, proc/wiring fault, brake on fault, HPD

When I went to make my chilly bin, I needed to work out how it was going to open because the steering wheel is in the way. My stakeholders suggested a double lid. I decided to cut a hole in the ply and then attach that to another piece of ply for the lid.

Cutting the top out



Evaluation

I have designed my motorized chilly bin so that it incorporates the specifications that myself and my stakeholders chose.

Specification	
Steel frame	I extended the steel frame with thinner tubing but same size wall thickness. The side guards are made out of steel checker plate.
Electric engine	I used the electric engine off my second mobility scooter. I did have to sort out a few electrical problems with the speed controller. Once repaired, I rewired everything so that it was hidden in the tubing and under the frame to make it more aesthetically pleasing.
Cools drinks	The chilly bin I made is sealed with silicon that will allow ice to be placed in it without leakage. There is also a bung in the bottom of the chilly bin which allows the user to empty when the ice turns to water.
Able to support rider	It's strong enough to support the rider and still manage a fun semi fast speed. I have reinforced the top of the chilly bin as you sit on the lid.
Enough ground clearance	I raised the rear suspension to make it sit higher. Because it has a short wheel base and has been raised, the chilly-bin is now able to manoeuvre the rough ground where it will be used.