

Main Points to take from consultation with stakeholders

1 (Points link up with stakeholders) The attachment pipe that the reel fits to could be slotted into the down-tube of the quad frame.

- The reel should be attached high up (opposite to the exhaust, left hand side of quad), to prevent the wire from snagging. The reel needs to be out of the way of standards (which are usually strapped to the back of carry-bars of the quad). The motor and reel need to be out of the way of the exhaust and operator of the squad.
- The reel needs to hold up to 500m of braided wire.
- Yes a very good idea. Would help elderly or disabled farmers a lot.
- Depends of the price, around \$200 would be fine most would buy one.
- Depends on the length of the paddock on scale 1-10, long paddock (350m) gets 10, and a shorter paddock (100m) 2-3. Note this is only with an econo-reel, which is not geared. With geared reel 4 > for 350m, 2/3 for 50-75m

Extra comments:

- A foldable support pole would be good. (cam lock to secure pole down)
- What if the wire gets caught in the grass or sticks?
- The reel needs a winding guide to prevent unbalanced winding **1**
- The orange plastic insulator handhold will get caught on stuff, for example, all of the standards of the fence!! (Major Flaw in design thinking)

The way that the fence is reeled in:

- Undo Loop/insulated handle
- Undo standards
- Wind reel in
- Get reel off the other end and wind in

Smart Thinking:

- The motor will need a switch system
- Call an electrician
- The insulated plastic handle needs to be modified.
- 5.

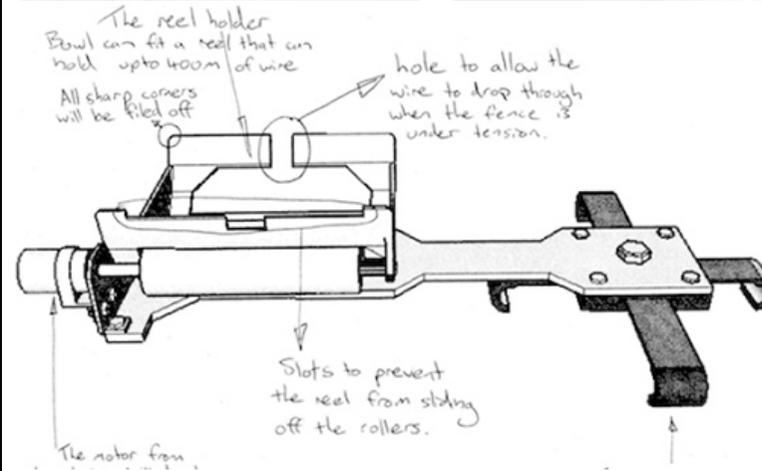
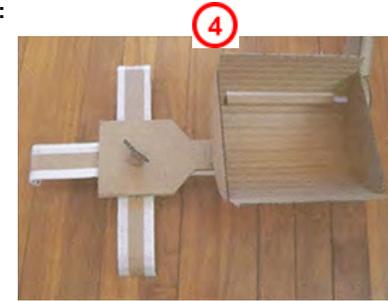
The problem I have encountered

A major flaw in my design has come up through stakeholder consultation. The problem is that the insulated plastic handle at the end of the **3** ided electric fence wire will jam on the standards as if the wire is being reeled in. However, there is a simple solution to this major problem, I will need to design a new handle that slots through the standard loops easier. This idea will also need consultation and design – as without this part the whole electric reel won't work and so won't be worth designing.

Student 3: Low Merit
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Fitness for Purpose in the broadest sense:

The reel holder will do the job because it will handle the **physical** environment it will be located in because it is made out of stainless steel. The handle is insulated for electrical **safety**. It will suit the **intended environment** as it is mounted on the quadbike so wont need insulation from the electric fence as it has rubber tires so the shock won't ground. I have considered safety also because all sharp edges will be filed off so farmers wont hurt themselves. The way I am handling **ongoing maintenance** of it is that it can be removed for the winter (or for maintenance) and replaced in the spring.





2

This type of electric fence handle often gets jammed in the fence standards and needs to be pulled loose.

Pictures above are in approximate scale.

Do you have any ideas on how the reel holder will attach to the quad carry-bars, what fittings would work the best in this situation?

It needs to be simply clipped on with a wing nut that will firmly fix it to the bike.

How high off the quad should the reel be placed?

It needs to be no more than waist height

Do you think a 4wd quad's handling or stability will be affected with the attachment of the whole mechanism?

Anything attached to the front will add to the steering difficulty. However a lightweight small rig to hold a reel will be of minor significance.

Are the different brands of reels different sizes? (E.g. diameter)

Go down to Farmlands or Wrightsons or R.D.I and measure all the models for sale.

What should be the final size that the whole will mechanism be? (in 3 dimensions and only approximately)

If the reels are on their own stand you do not need a rig in the bike. You only need a rig on the bike for those reel that need to be held so that the reel can be wound up without it rubbing against the bike.

Stakeholder consultation #2

3

D S

Would an electric fence damage the electrics of a quad if they were put in contact?

No iv grabbed plenty of electric fences that I thought were off and got shocks from them, which would had earthed through the bike so no I guess not.

How could the electric motor be waterproofed?

It obviously needs some sort of container to protect it.

How long does the reel holder have to last?

A minimum of five years.

Do you think the reel will need a winding guide to prevent bunching of the wire on one side of the reel?
(If so, do you have any ideas on how it should be made?)

There are already reels on the market with guides. You are standing right there and could easily ensure that the polywire fills the drum evenly

Do you have any ideas on how the frame holding the reel will be designed?
(If so please explain)

No

How will the reel get the 'drive' from the electric motor, will it be direct contact like with a friction roller, belt driven or by a driveshaft?

I don't know.
You'll need to do a design and costing on each type and check with your clients as to the practicality. I think the current market model is a fist sized electric motor that you hold in one hand and it friction drives the reel.

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