

Remotely Operated Automatic Gate Openers

Managers/Owners/Group's Name: JANE LUCKRAFT, BENDLEBY PASTORAL

Property name: BENDLEBY PASTORAL
Property location: Bendleby, via Orroroo. SA 5431
Size of property: 13,000 Ha
Brief enterprise description: Grazing – Sheep and Cattle
Number of people working in the business: 2
Average annual rainfall: 270 mm

Background information

Set the scene by providing some background information on you and your property

If pastoralists are to increase production, and at the same time reduce overheads, as much technology as possible will need to be used. It is envisaged that a remotely controlled gate opening and closing system would be part of a rotational grazing system, which could improve carrying capacity, without acquiring more land.

In addition to providing strong benefits to more efficient operation, a remote infrastructure management system can also be used to capture operational data to support research and changes in management practices, and compare the impact of changes in overall management practices.

The innovation is a:

Brief description of what the innovation is and does.

A solar-powered remote gate opening and closing system has been set up for stock access to feed and water, by using telemetry (NextG mobile phone, satellite or UHF radio connectivity).

What was the motivation to change?

What is/was the driver, the issue, the purpose behind the innovation?

Monitoring and controlling remote infrastructure, particularly water infrastructure, is an expensive and time-consuming activity on pastoral properties. Remote infrastructure management systems using telemetry and specialised computer software can dramatically reduce the associated costs and potentially improve system reliability.

How does the innovation work?

Feel free to describe in steps, e.g. the animal approaches, the gate opens...etc.

- Initial desktop research was carried out looking for businesses with gate opening and closing systems that could be adapted to telemetry.
- Booleroo Farm & Business Communications were asked to adapt existing technology to set up a trial system.
- A trial system was set up with a gate in a remote location, ready to be operated by telemetry.
- A camera was set up on a high point near the gate, incorporating the telemetry to open and shut the gate.
- A web page was set up to take snapshots of the gates from the camera. The gate opening and closing was initiated from the website, with the signal going to the camera/telemetry device and then the gate.
- By taking photos during the process, the movement of the gate could be checked.

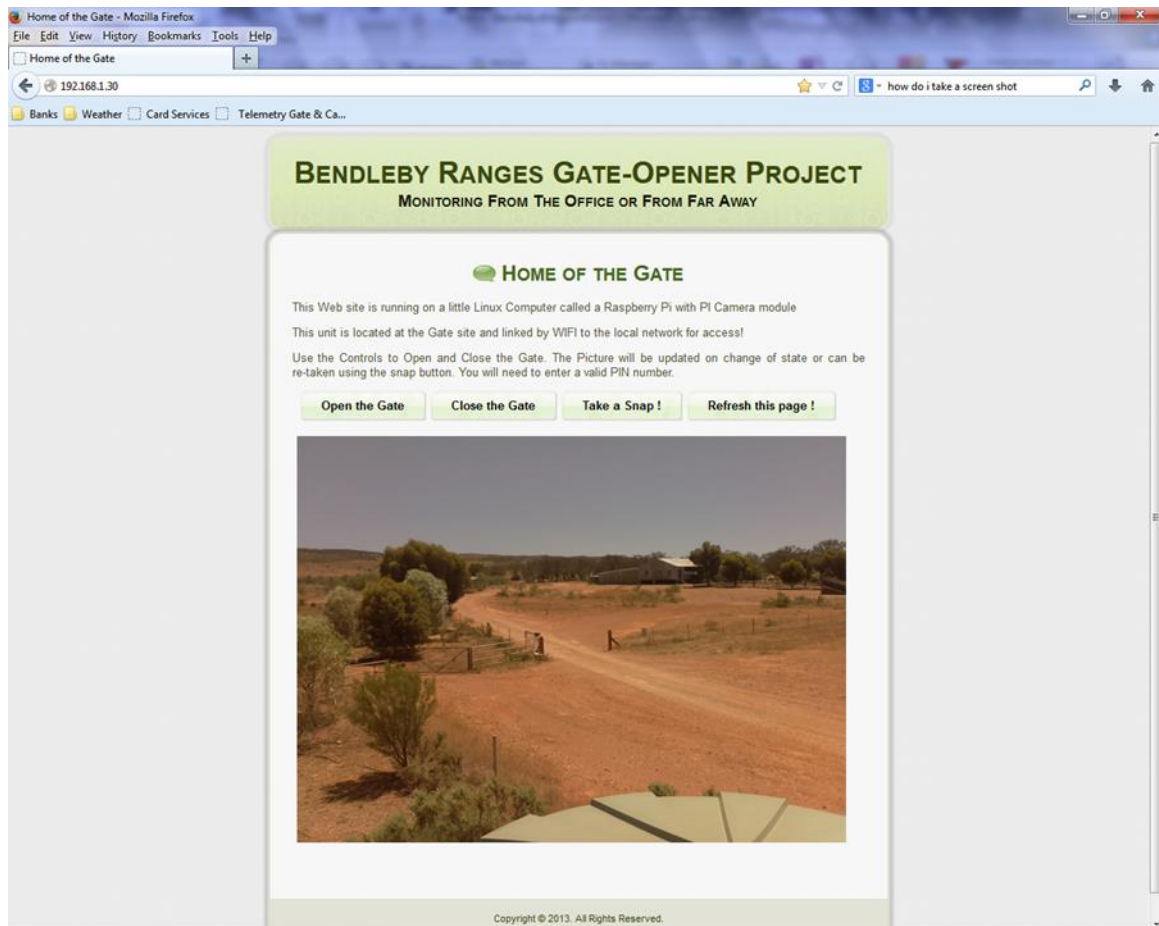


Figure 1: Screen shot from “Control Panel”

Key features

What do you see as the key features of your innovation, and what sets it apart from the rest?

- The key feature is the simplicity of use – opening and closing a gate from a computer and being able to see if the device is working properly.
- The ability to see it working by using a camera, ensures that the gates are opened and shut at appropriate times i.e. when all stock have moved to the next paddock.
- Other sensors can be added – stock counting, trough monitoring, electric fence monitoring.



Figure 2: Web cam of gate shut



Figure 3: Web cam of gate open



Figure 4: Web cam of gate being shut

What are the key benefits of the innovation, and the impact it has made?

What are the key benefits of the innovation?

Detail the impact the innovation has made to your work, job flow, efficiency, productivity, and or overall lifestyle.

- This is a labour-saving device, which will enable properties to reduce the time needed to travel to and from paddocks to open and close gates for sheep movement and water monitoring, i.e. properties will be able to manage with less staff.
- Fuel costs and wear and tear on vehicles will be greatly reduced. Also the roads to and from the paddocks will be less used, and less likely to add to wind and water erosion.
- This could be added to existing rotational grazing systems, and with other sensors (eg sheep/goats/kangaroo counters, electric fence monitors, the whole process could be run from the office by using NextG, satellite or radio technology.
- At this stage, only the trial system is in place and it has not been added to a larger system i.e. a cell grazing system, but it is envisaged that this will occur soon.

Key material required for the innovation

What materials were required for your innovation, or to add to current set-up?

What resources were used, e.g. people, skills, trained professionals, tools, equipment, time, etc.

Materials used:

- Gate opening and closing device
- Battery
- Solar panel
- Camera, mounted on a pole
- Telemetry installed in the camera
- Website set up to control gate mechanism and to take snapshots

Expertise used:

- Alex Woolford, Booleroo Farm & Business Communications accessed the gate opening and closing device, as well as adapting existing technology for its control.
- Alex set up a password-protected network where snapshots of the gate were taken, and the gate opened or closed by clicking on a tab on the web page.

Potential caution and risk

If someone else was to take on your innovation, what would be the words of caution or risks of the innovation that you would pass on?

Ensure that the website is password-protected so that it is not available for misuse.

What could be done differently next time?

Detail what you have learnt implementing this innovation, and if you were to repeat this innovation, what are the steps that you would do differently?

That the original idea could work, using existing technology. I wouldn't do anything differently.

Looking forward

Where to from here? Are you selling your invention? Have you or are you going to implement it across your property? Are you promoting it in agricultural groups around you? Are people interested in this innovation? Have you got other innovations to move onto?

We intend to roll out the telemetry system initially over 2 cells, incorporating central watering systems which can be monitored by camera. This will involve sub-dividing 2 existing paddocks into 8 cells in each, with a central water cell.

This trial has only just been completed, so there has been no media or farm group involvement to date.

Further Resources

What further resources of information are recommended to readers of this innovation profile?

E.g. websites, consultants, field days.

Contact Alex Woolford, Booleroo Farm & Business Communications 8667 2268

Cost benefit analysis:

What is/was the cost of the innovation? Please provide detail where possible.

Labour, install Web-based camera, gate opener/actuator, for field trial at the property. Configure operation on NextG WIFI LAN System.	\$308
APC Gate opener mechanism/motor and arm, including delivery	\$360
Complete web-based control system, including control unit at the gate with 900 mhz radio link, camera interface control at The Springs, and all mounting hardware and AC supply.	\$320
Travel – 2 trips to Bendleby Ranges at 50c/km	\$100
Battery to operate mechanism	\$200
Labour to install gate opening and closing mechanism	\$200
TOTAL COST	\$1,488

Initial inquiries about the gate control mechanism indicated a cost of \$800, but a robust mechanism has been found that is less expensive.

As it is only a trial, we have not set up a solar panel, so that would be an extra cost.



Figure 5: Web camera and radio link



Figure 6: Gate opener mechanism

What are the perceived, estimated or calculated benefits of the innovation?

Cost savings.

The ability to run a property from afar.

The final word

Have you got anything further to add in closing?

Bestprac acknowledges the contribution of Jane Luckraft in the development of this innovation profile.

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