# Cambridge cows kept safe from river falls with solar-powered GPS collars



Cows grazing in central Cambridge are benefiting from innovative technology designed to prevent them from falling into the river, a concern that has plagued the area for years. Equipped with state-of-the-art GPS collars that incorporate virtual fence technology, these cows are now able to roam freely while being safeguarded from the water’s edge. The collars, which are solar-powered and operate through a mobile app, set an electronic boundary that the animals can learn to respect. As they approach this predefined limit, a warning sound alerts them, escalating in pitch before delivering a low-level electric pulse if they continue beyond the zone.

Historically, the grazing cows have been a cherished aspect of Cambridge’s communal landscape, with their presence dating back to the Middle Ages. The city council has indicated that, on average, between two to four cows fall into the river every grazing season. This statistic underscores the necessity for effective management and humane solutions to mitigate risk. Recent public consultations have confirmed the local community’s affection for this tradition, leading the council to assure residents that it will continue to fund both grazing and the technological support designed to enhance animal welfare.

In a broader context, the introduction of GPS collar technology in Cambridge mirrors similar initiatives across the UK and Europe. For instance, Surrey County Council has implemented a comparable system known as Nofence, which allows land managers to establish virtual grazing boundaries, promoting not only animal welfare but also biodiversity. This method has drawn attention for its potential to eliminate the reliance on traditional fencing, thus enhancing overall land management.

The efficacy of these collars in training cattle to respond to audio cues has been supported by scientific studies. Research published in the Journal of Dairy Science has found that cattle quickly associate the warning sounds with the subsequent electrical stimulus; this encourages them to avoid crossing boundaries and results in reduced stress over time. Such findings bolster the argument for integrating modern technology into traditional farming practices, balancing historical methods with innovative solutions.

As Cambridge moves forward with these advancements, city officials emphasise the importance of maintaining the symbolic presence of grazing cows, which many residents and visitors hold dear. Martin Smart, the executive councillor for open space and city services, expressed this sentiment, stating, “This is a special and unique feature of the city that is much loved by residents and visitors alike.” His comments reflect a commitment to both preserving a historical tradition and embracing technological advancement aimed at improving the welfare of livestock while protecting their environment.

The integration of GPS technology in livestock management not only enhances animal safety but also positions Cambridge at the forefront of a high-tech revolution in farming practices. As cities grapple with the challenges of urban land use and environmental sustainability, such initiatives may serve as a model for communities seeking to blend tradition with innovation.

### Reference Map

1. Paragraph 1: [[1]](https://www.independent.co.uk/news/uk/home-news/cambridge-cows-river-fall-collar-gps-technology-b2754396.html)
2. Paragraph 2: [[1]](https://www.independent.co.uk/news/uk/home-news/cambridge-cows-river-fall-collar-gps-technology-b2754396.html)
3. Paragraph 3: [[5]](https://news.surreycc.gov.uk/2023/07/24/gps-grazing-collars-for-moo-ving-surrey-cows/)
4. Paragraph 4: [[6]](https://www.journalofdairyscience.org/article/S0022-0302%2821%2900481-1/fulltext)
5. Paragraph 5: [[1]](https://www.independent.co.uk/news/uk/home-news/cambridge-cows-river-fall-collar-gps-technology-b2754396.html)
6. Paragraph 6: [[2]](https://www.cambridgenetwork.co.uk/news/high-tech-collar-brings-wearables-revolution-cows), [[4]](https://www.engineersireland.ie/News/high-tech-collar-brings-wearables-revolution-to-irelands-cows)
7. Paragraph 7: [[3]](https://www.wildlifebcn.org/blog/guest-post/nofence-cattle-collars)

Source: [Noah Wire Services](https://www.noahwire.com)

## Bibliography

1. <https://www.independent.co.uk/news/uk/home-news/cambridge-cows-river-fall-collar-gps-technology-b2754396.html> - Please view link - unable to able to access data
2. <https://www.cambridgenetwork.co.uk/news/high-tech-collar-brings-wearables-revolution-cows> - Cambridge Industrial Design has developed a GPS-enabled collar for dairy cattle, allowing farmers to monitor grazing patterns and milk yields. The collar tracks cow movements, categorizing behaviors like grazing or socializing, and transmits data via mobile networks to a central hub. This system enables farmers to create virtual electric fences, optimizing grazing areas and reducing the need for physical fencing. The project, part of a pan-European initiative, is currently in the trial phase in Ireland, with results expected by June 2016.
3. <https://www.wildlifebcn.org/blog/guest-post/nofence-cattle-collars> - The Wildlife Trust for Beds, Cambs, and Northants is trialing Nofence cattle collars, which create virtual boundaries for livestock. Controlled via an app, these collars emit audible warnings as cattle approach predefined zones, and if ignored, deliver a mild electric pulse. The technology allows cattle to roam safely across nature reserves, reducing the need for traditional fencing and enabling better conservation grazing management. The collars have been effective in training cattle to avoid restricted areas, with minimal adverse reactions.
4. <https://www.engineersireland.ie/News/high-tech-collar-brings-wearables-revolution-to-irelands-cows> - Engineers Ireland reports on a wearable GPS collar developed by Cambridge Industrial Design, enabling farmers to track dairy cattle movements and manage grazing patterns. The collar, part of a European project involving True North Technologies, Teagasc, and others, monitors behaviors like grazing and socializing. Data is transmitted in real-time to a central hub, where it's analyzed alongside milk yields and grass length. This system allows farmers to create virtual electric fences, optimizing grazing areas and reducing the need for physical fencing.
5. <https://news.surreycc.gov.uk/2023/07/24/gps-grazing-collars-for-moo-ving-surrey-cows/> - Surrey County Council has implemented GPS grazing collars for cattle across its Countryside Estate to aid conservation grazing and enhance biodiversity. The 'Nofence' system, controlled via an app, allows land managers to map virtual boundaries for cattle. When cattle approach these boundaries, the collars emit audio signals, escalating to a mild electrical pulse if the boundary is crossed. This technology reduces the need for traditional fencing, saves time and money, and benefits biodiversity by enabling targeted grazing in specific areas.
6. <https://www.journalofdairyscience.org/article/S0022-0302%2821%2900481-1/fulltext> - A study published in the Journal of Dairy Science examines the effects of virtual fencing technology on cow welfare and behavior. The technology uses a neckband-mounted device to deliver audio cues when cattle approach a GPS-defined virtual boundary. If the animal continues beyond the boundary, an electrical stimulus is delivered. The study found that cattle rapidly learn to associate the audio cue with the electrical stimulus, leading to a decrease in the number of electrical stimuli over time, indicating effective training and minimal stress.
7. <https://totaltele.com/gps-collar-brings-wearables-to-cows/> - Total Telecom reports on a GPS-enabled collar developed by Cambridge Industrial Design, designed to track dairy cattle movements and improve grazing management. The collar monitors behaviors such as grazing and socializing, transmitting data in real-time to a central hub. This information is analyzed alongside milk yields and grass length, allowing farmers to create virtual electric fences. The system aims to optimize grazing areas and reduce the need for physical fencing, enhancing efficiency and animal welfare.