

Design Proposal Template:

School: Anton Chico Middle School **State:** New Mexico **Division:** Middle School

Team Members' Names: Madison Maestas, Ellyanna Villanueva, Cienna Martinez, and Juan Sanchez.

Project Title: Should be creative and give readers a general sense of what the project is about and want to read more. (20 word maximum)

Cowboy Connect: A GPS Cattle Tag with an AI-Driven Voice Assistant for Hands-Free Livestock Management (15 words)

Community Challenge Being Addressed: Describe the community challenge that you will attempt to address with your proposed solution. (75 word maximum)

Ranching is a huge part of our community, with over 24,000 cattle raised in Guadalupe County, NM for the beef industry. Most ranches are small family operations run by older farmers. It is hard for them to do the heavy lifting and keep track of everything manually themselves. Our solution is Cowboy Connect: A GPS cattle tag connected to an app with an AI voice technology to help these ranchers manage their livestock hands-free. (75 words)

Community Research and User Identification: Explain the process used to identify the community challenge and select your user. Include any research done to identify issues in your community and understand which groups face challenges because of these issues. (150 word maximum)

To address our community challenge, first, we analyzed data from the USDA and the New Mexico Department of Agriculture. This data showed that small family owned farms are the main source of income for most people in Guadalupe County and most ranchers are 60 years old or older.

Next, we sent a survey to local ranchers to determine if they would be open to using technology in the management of their cattle. We received a 100% response rate to implementing a new technology in their business. In the survey they indicated that "finding reliable labor" is one of their biggest struggles.

Given these data we focused our research on elderly, small-scale ranchers as our users. They do the most work, but need the most help. Cowboy Connect is a GPS cattle tag with an AI voice-controlled app that lets you manage your herd hands-free. No extra hired help required. (149 words)

User Profile: Provide a detailed description of your selected user. Include information about challenges they face, how those challenges impact their lives, and specific project needs based on user feedback. (150 word maximum)

User 1 is a 62-year-old rancher who takes care of 100 cows all by himself. Doing things like branding, vaccinating, and traveling across rugged land alone is super exhausting and stressful for his body. He is always worried about losing his cows or missing important health information. It is impossible to write stuff down when your hands are full and you have no help.

Cowboy Connect solves this by eliminating the hunt for lost cattle with GPS tracking that integrates seamlessly into his existing tagging routine. Additionally, our AI voice assistant lets him log data on the go just by talking. He no longer has to stop work for a pen or phone, saving him vital time, fuel, and physical energy while keeping his records accurate

Cowboy Connect aims to bridge the technology gap in ranching, connecting traditional methods with the next generation of ranchers. (145 words)

Project Goals: List your project goals and explain how these goals will address the community challenge. Project goals should define the desired outcomes, not specific features of the proposed solution. (150 word maximum)

Our main goal is to make livestock record-keeping at least 50% faster for ranchers. Our product makes it easier to log health, vaccinations, and treatments. Better records enable ranchers to spot health problems early. This helps prevent cattle from getting sick or lost, which keeps the whole herd healthy and productive.

Our second goal is to help ranchers track the location of their herd. We want to make herd management efficient, so ranchers don't waste hours searching for lost livestock. Our product tracks the exact location of each animal. This gives ranchers better oversight of their herd without the extra stress.

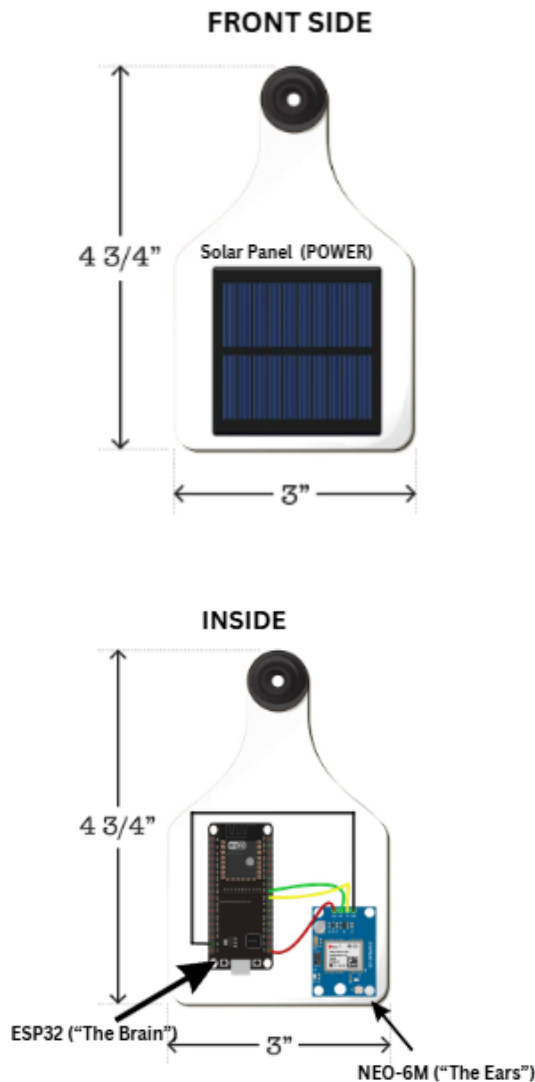
These goals help solve the "labor shortage" by letting one person do more work in less time and reduce the burden on elderly ranchers working alone. Cowboy connect aims to honor ranching heritage by staying rooted in tradition, while driving the industry forward through purposeful innovation. (147 words)

Proposed Solution: Describe your proposed solution, including any innovative and unique features, and explain how this solution will address your users' needs and the challenges they face. (150 word maximum)

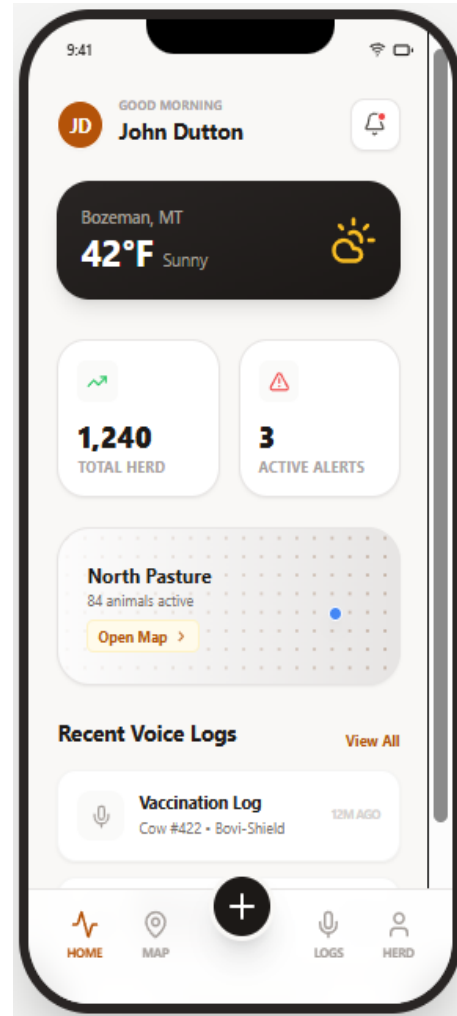
Our solution is Cowboy Connect, a GPS cattle tag with an AI-powered voice assistant designed for hands-free ranch management. What makes Cowboy Connect unique is that it uses a GPS cattle tag to allow a rancher to track their cattle on the app in real time. The app has a ranch management system that works using AI voice assistance. This allows ranchers to log data using only their voice while their hands are busy branding, vaccinating, or fixing fences.

This directly addresses user needs because he no longer has to stop his physical labor to write in a notebook or type on a phone. The voice-to-text feature ensures 50% faster record-keeping and prevents "forgotten data" during busy seasons. Cowboy Connect combines location tracking with voice commands giving solo, elderly ranchers a "digital ranch hand" that makes their work safer, faster, and much less stressful.

Initial Design: A single graphic of your first design idea with key features adequately labeled. It should be easy to understand, and the reader should have a general understanding of how the prototype functions by looking at the graphic. Max size 8.5" x 11". May contain up to 4 views of the design.



The image above shows what the cattle tag would look like. It utilizes an Arduino Nano board and a GPS module. The tag will be powered by a small solar panel.



The image above shows the app component of our prototype. It includes a map feature that displays the real-time location of all cattle in the pasture. The app also features an AI voice assistant that allows users to quickly log notes while branding or vaccinating cattle.

References:

Cattle Count: USDA National Agricultural Statistics Service, 2022 Census of Agriculture.

Ages & Farm Size: New Mexico Department of Agriculture, 2021-2024 Annual Statistics Bulletins.