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Remote Monitoring of Water Level in Storage Tanks via Radio Signal

Water storage is a critical issue in areas without regular rainfall. Storing water in tanks is particularly important for maintaining livestock, especially on ranches in eastern Montana. These tanks must be continually monitored because when they run low, the livestock may not have adequate water. A single ranch might use several water tanks spread across several miles, so the task of manually visiting each location and inspecting the water level can be very time-consuming and inefficient. If the task of monitoring the water level in these tanks were automated, this cost could be eliminated. At Bill Almy's ranch in eastern Montana, an automated system has already been implemented. A battery-powered device in the water tank sends a radio signal to a computer at the ranch headquarters, where the data is shown on a static web page. Unfortunately, this software has a deprecated interface, which is not optimized for mobile devices. It is also unsupported, and it frequently crashes. In this project, a new program was developed to receive and interpret radio packets, and a dynamic web page and phone application were designed to display the data.