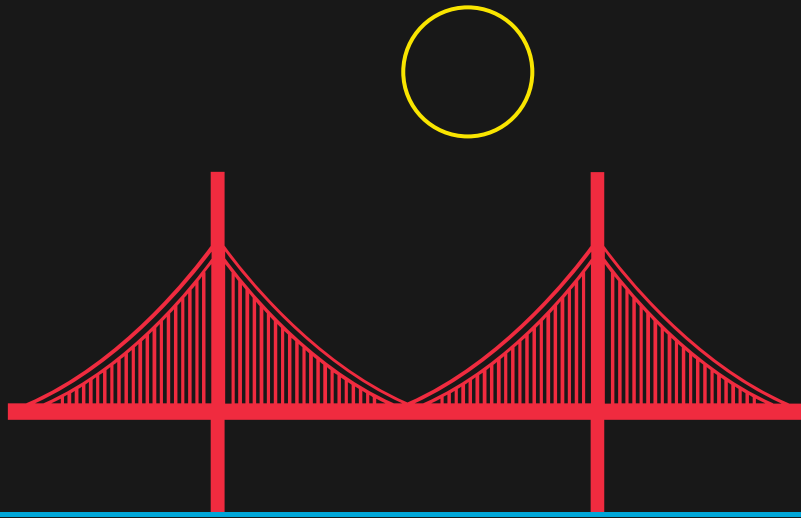
Gauge Guardian



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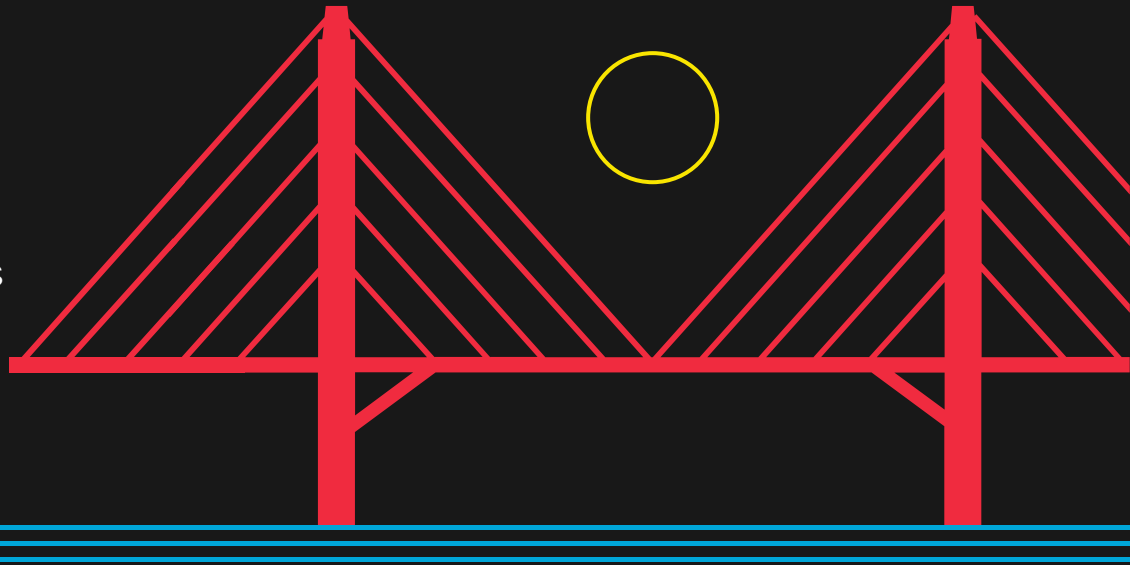
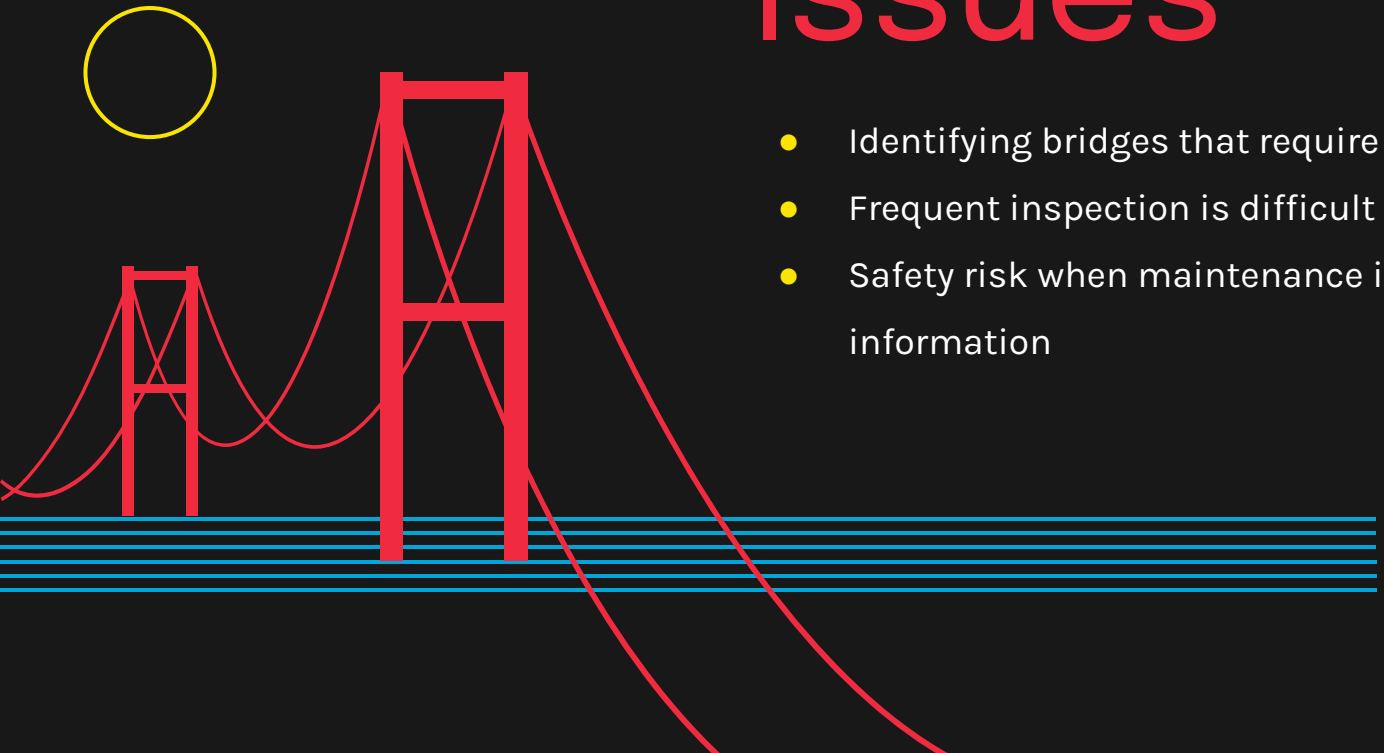
Louis Quattrocchi, Colter Musgrove, Ali Shlaibah

Our Research Process of the bridges

We looked at:

- Year built
- Average daily traffic
- Government Expenditures
- Average Snowfall

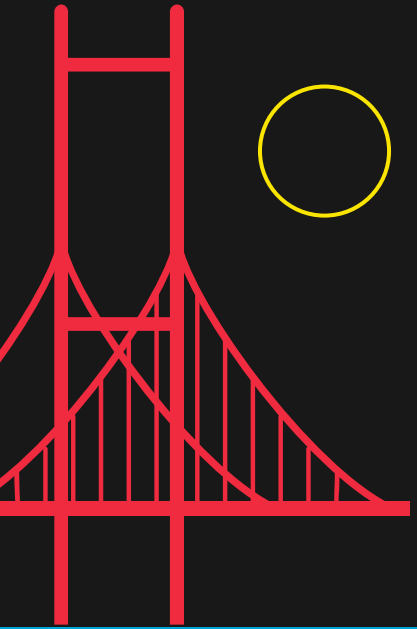


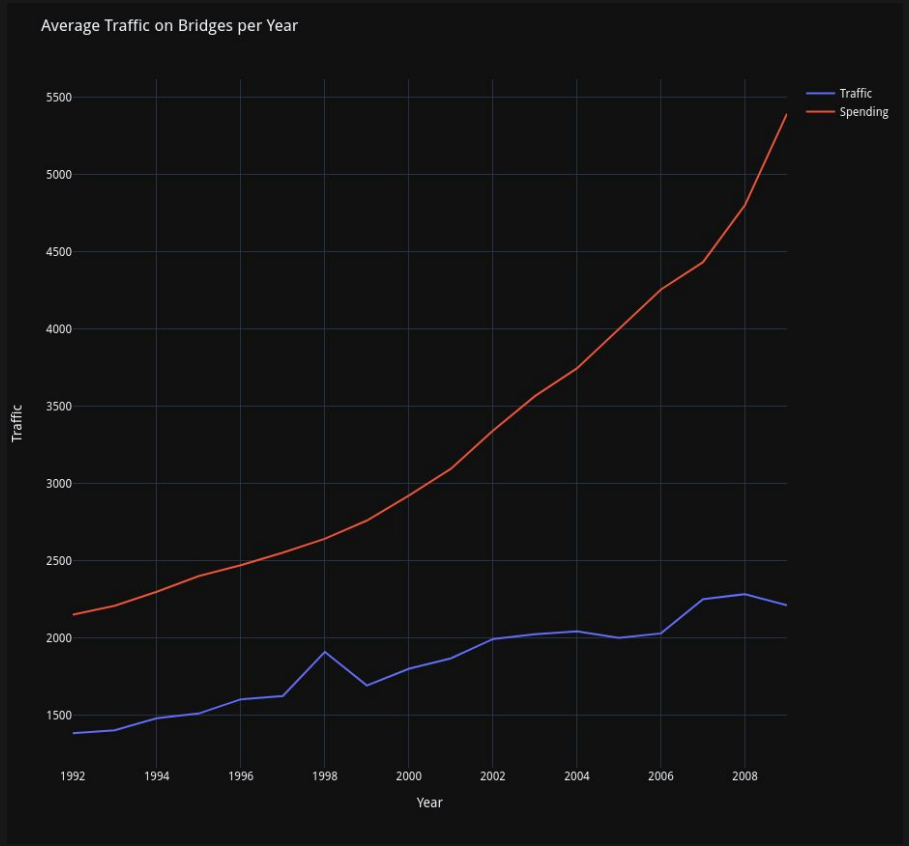


Issues

- Identifying bridges that require maintenance
- Frequent inspection is difficult to do
- Safety risk when maintenance is delayed due to lack of information

What the data shows





Our Solution: Gauge Guardian

Gauge Guardian is a revolutionary solution that will transform the way Nebraska approaches infrastructure spending. With Gauge Guardian, every bridge in the state will be equipped with sensors that constantly monitor and measure its deformation. This data is then transmitted to a centralized system, which can analyze the information using previously collected bridge information and identify potential issues before they become major problems. By detecting issues early, Gauge Guardian will helped Nebraska save money on infrastructure spending by avoiding costly repairs or even bridge replacements. With this innovative solution, Nebraska will be able to prioritize its infrastructure spending in a more efficient and cost-effective manner, ensuring that our bridges remain safe and functional for years to come.

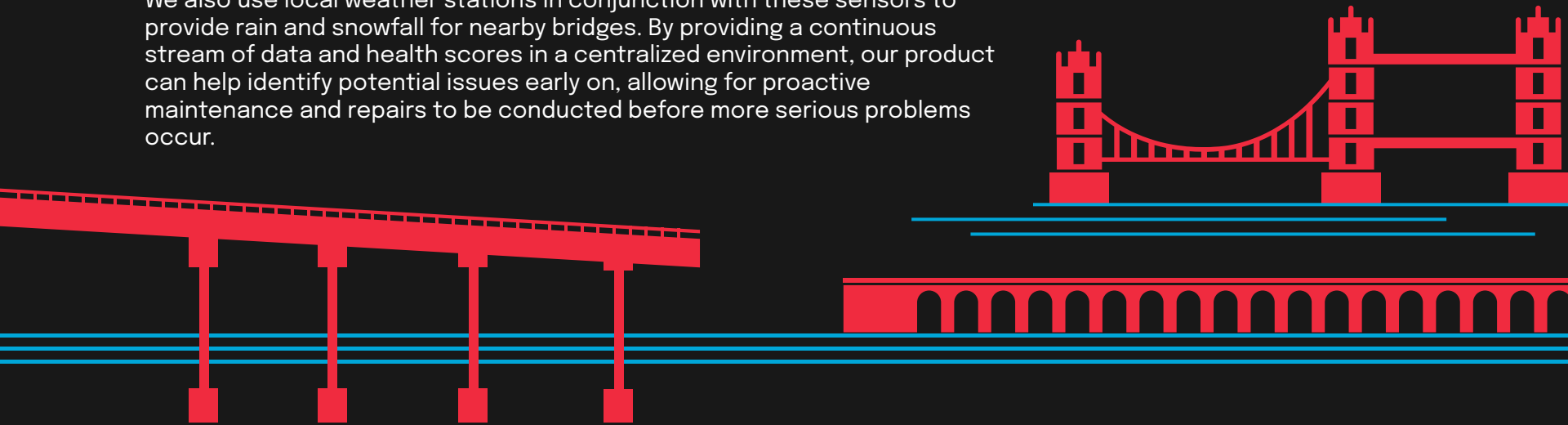
What does Gauge Guardian do?

Let’s take a look

How Gauge Guardian works

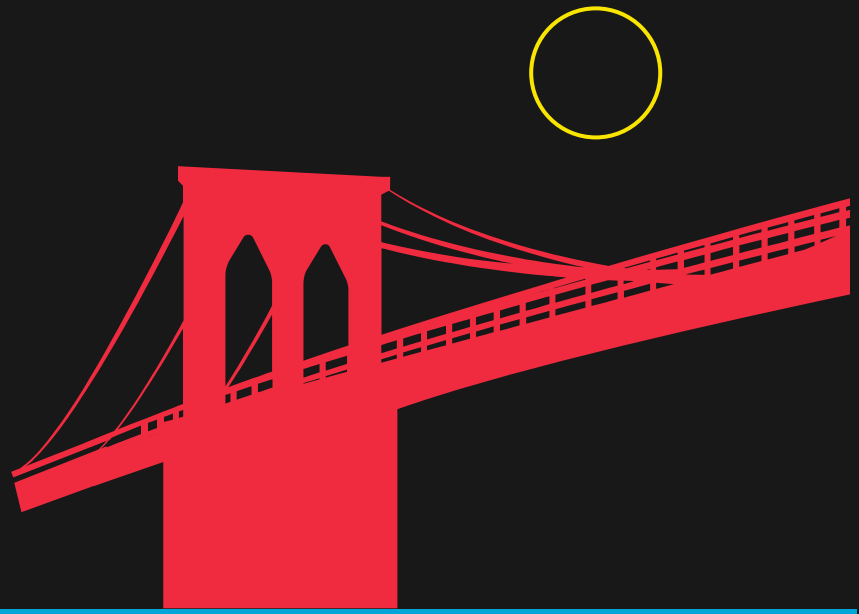
The collection occurs by using strain gauge sensors on the side of a bridge, along with a motion sensor that measures traffic passing by. The sensors communicate with a primary sensor over lora. The primary sensor is connected to a T-Mobile or Verizon Hotspot Puck, which allows us to upload data even in the most rural areas of Nebraska using existing cellular infrastructure. Distributed cloud databases hosted by AWS or Google Cloud would allow scaling the technical stack of Gauge Guardian to many cities while also reducing cost of individual city government hosting.

We also use local weather stations in conjunction with these sensors to provide rain and snowfall for nearby bridges. By providing a continuous stream of data and health scores in a centralized environment, our product can help identify potential issues early on, allowing for proactive maintenance and repairs to be conducted before more serious problems occur.



$27B in Federal Funding

Is the amount being invested to maintain and repair bridges in the US, in the future passed in 2022. That makes it the single largest dedicated single bridge investment since the construction of the interstate highway system. Nebraska can leverage this funding along with other large quantities of money spent yearly on bridge repair by the current administration to install Gauge Guardian.

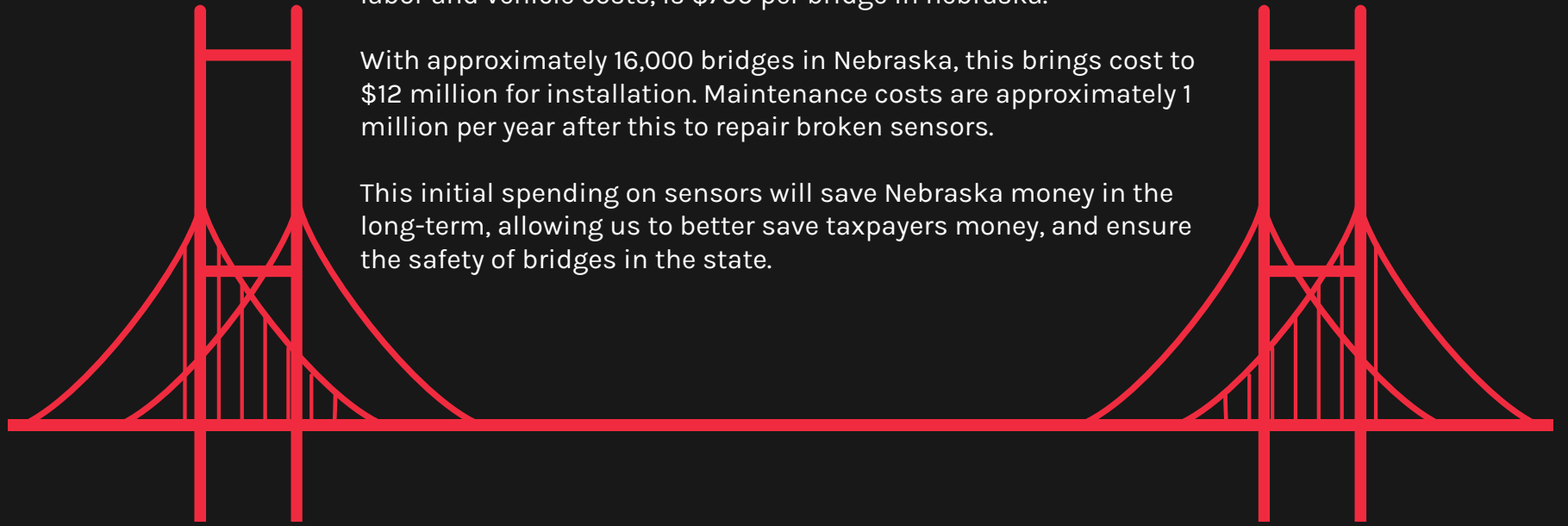


Use of Funds

A Bureau of Business research scholar, Juliana Quattrocchi, estimated that the cost of installation of our sensors, including labor and vehicle costs, is $750 per bridge in nebraska.

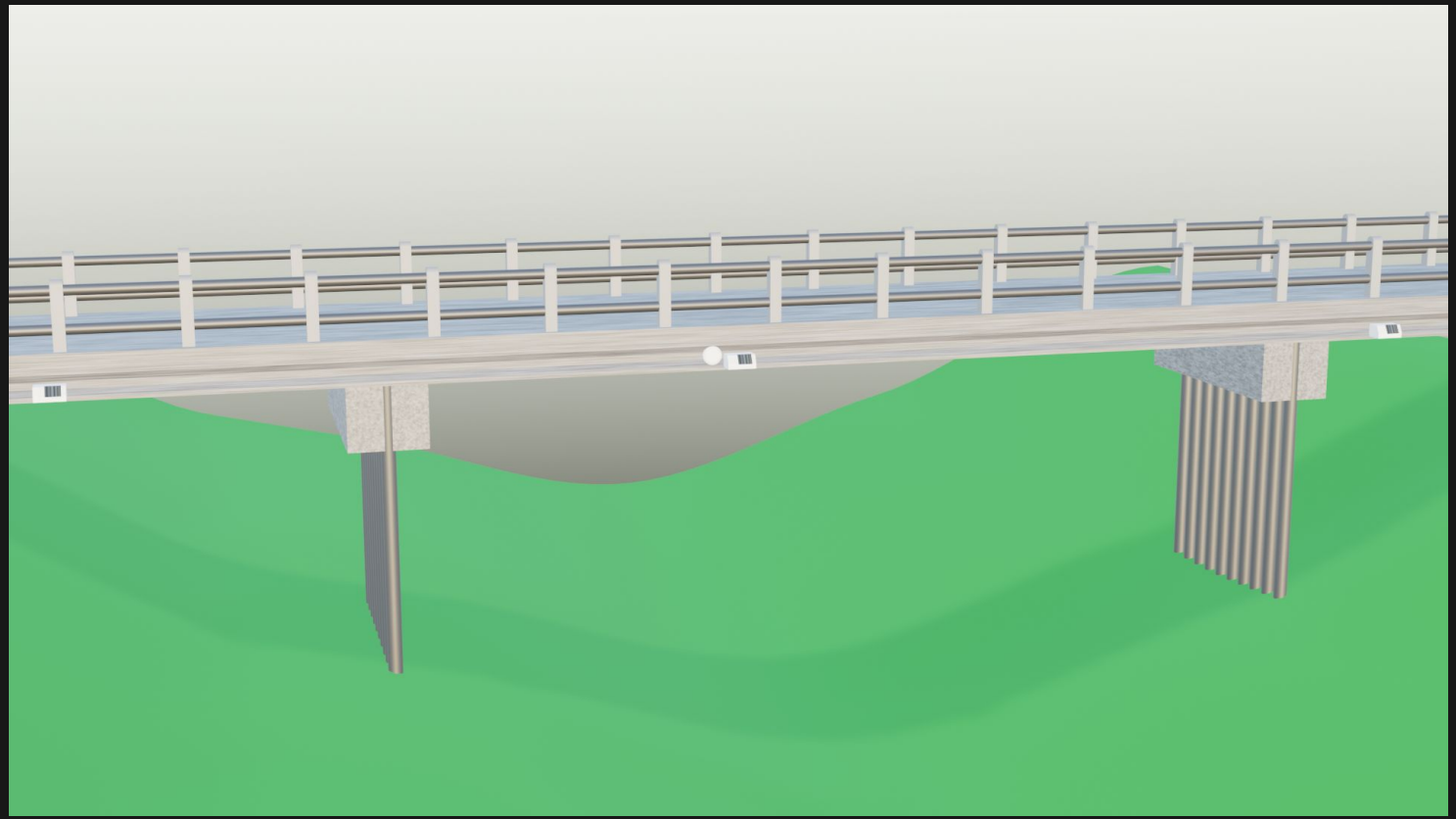
With approximately 16,000 bridges in Nebraska, this brings cost to $12 million for installation. Maintenance costs are approximately 1 million per year after this to repair broken sensors.

This initial spending on sensors will save Nebraska money in the long-term, allowing us to better save taxpayers money, and ensure the safety of bridges in the state.

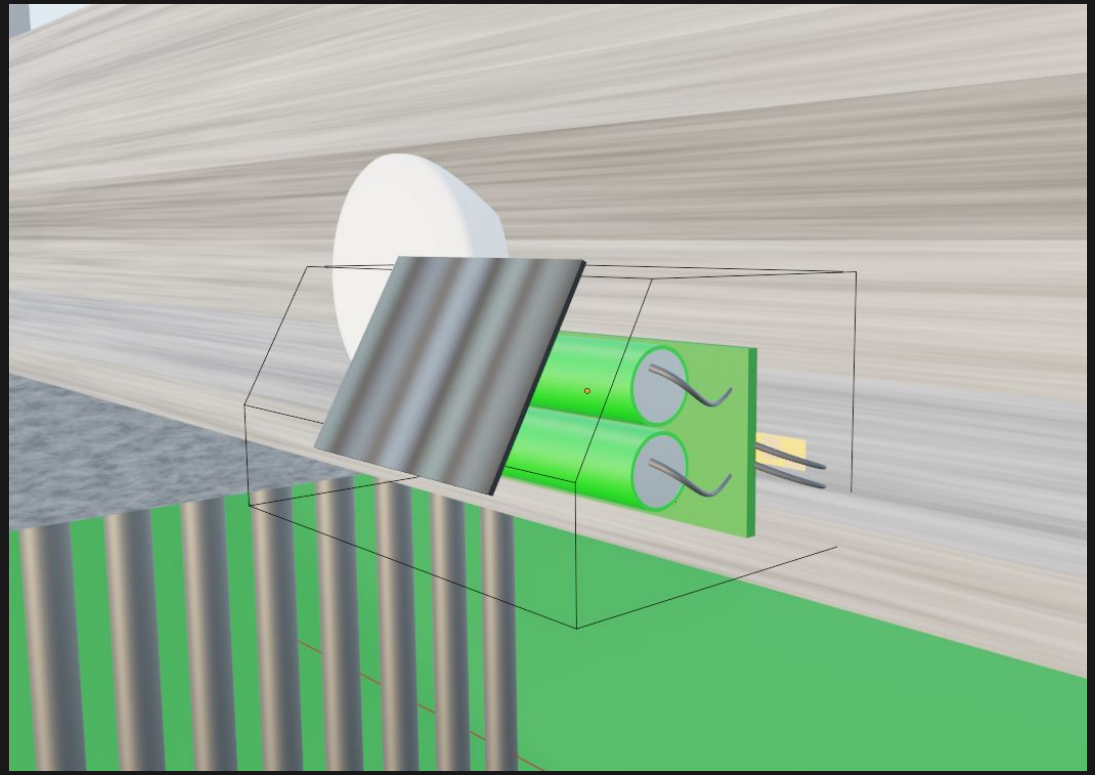


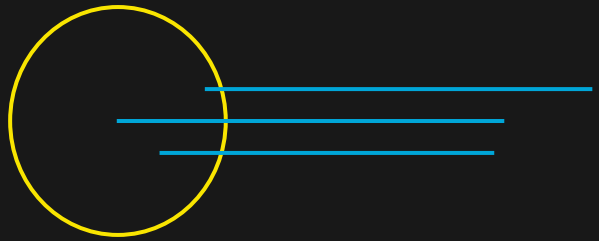
Example Deployment

Example Deployment. Cont



Example Deployment. Cont





Thank you for your time