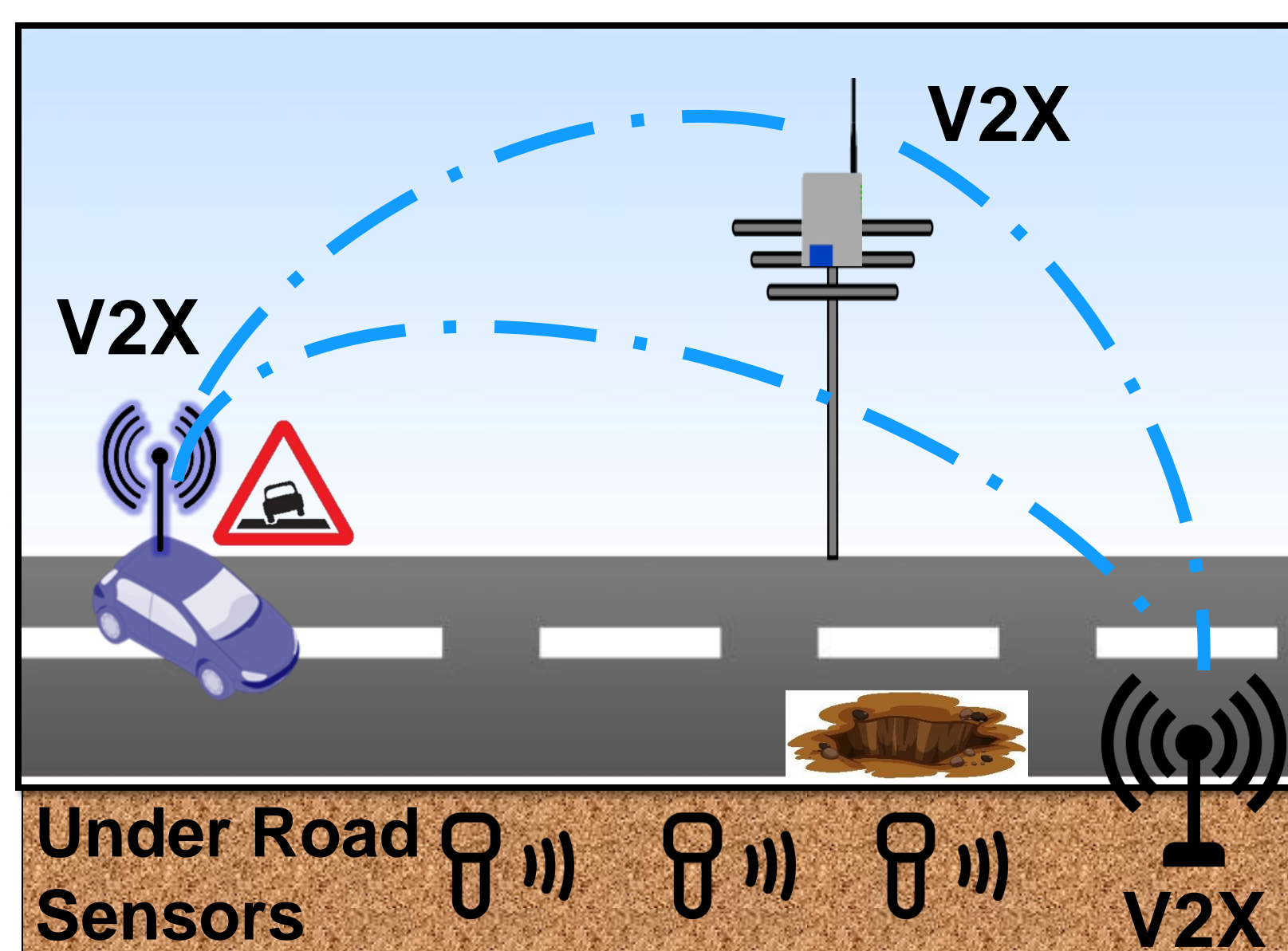


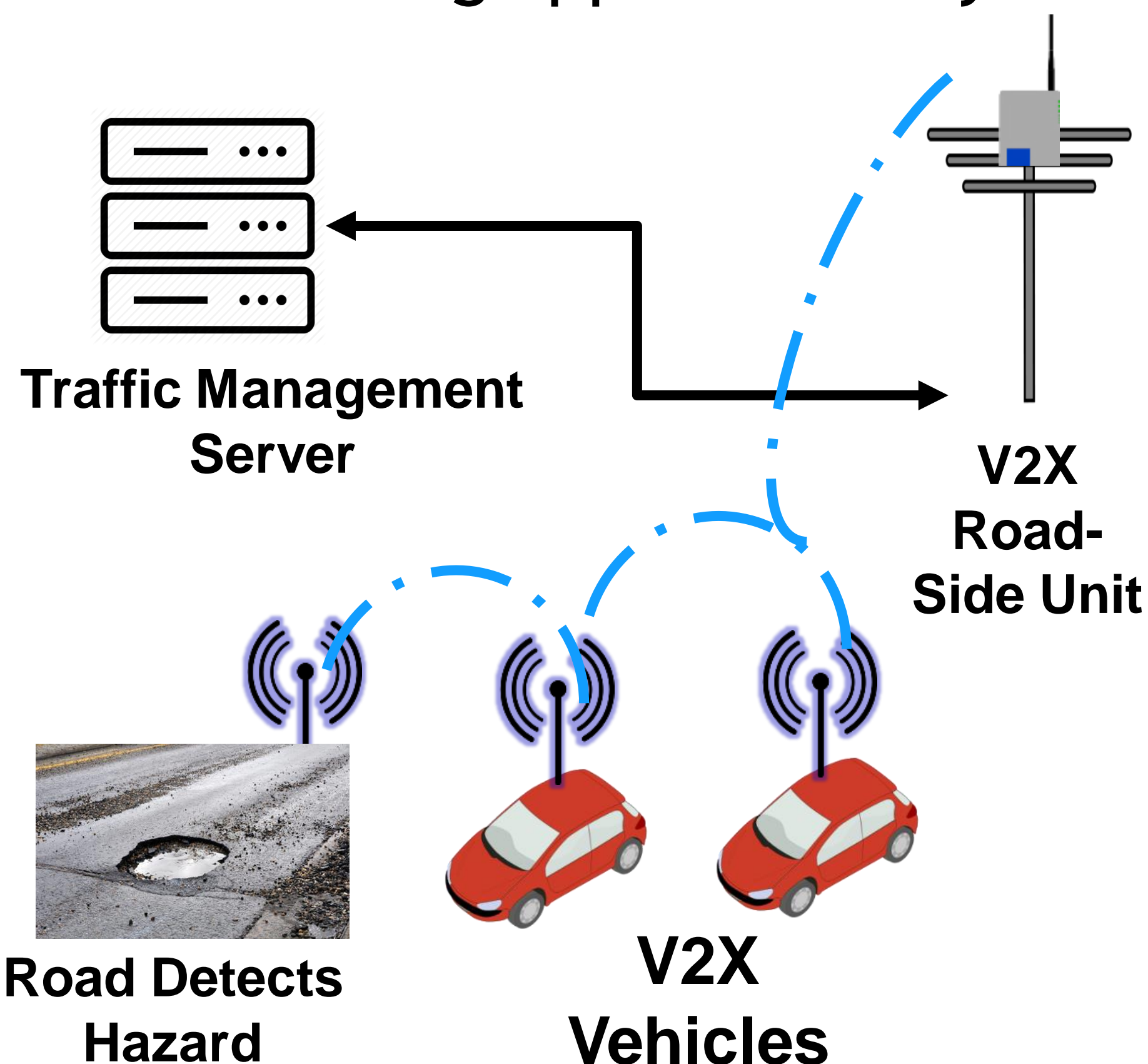
## Problem

Using Vehicle-to-Everything (V2X) communications, roads may one-day be able to talk to cars. What is the best packet structure, to enable real-time warnings?



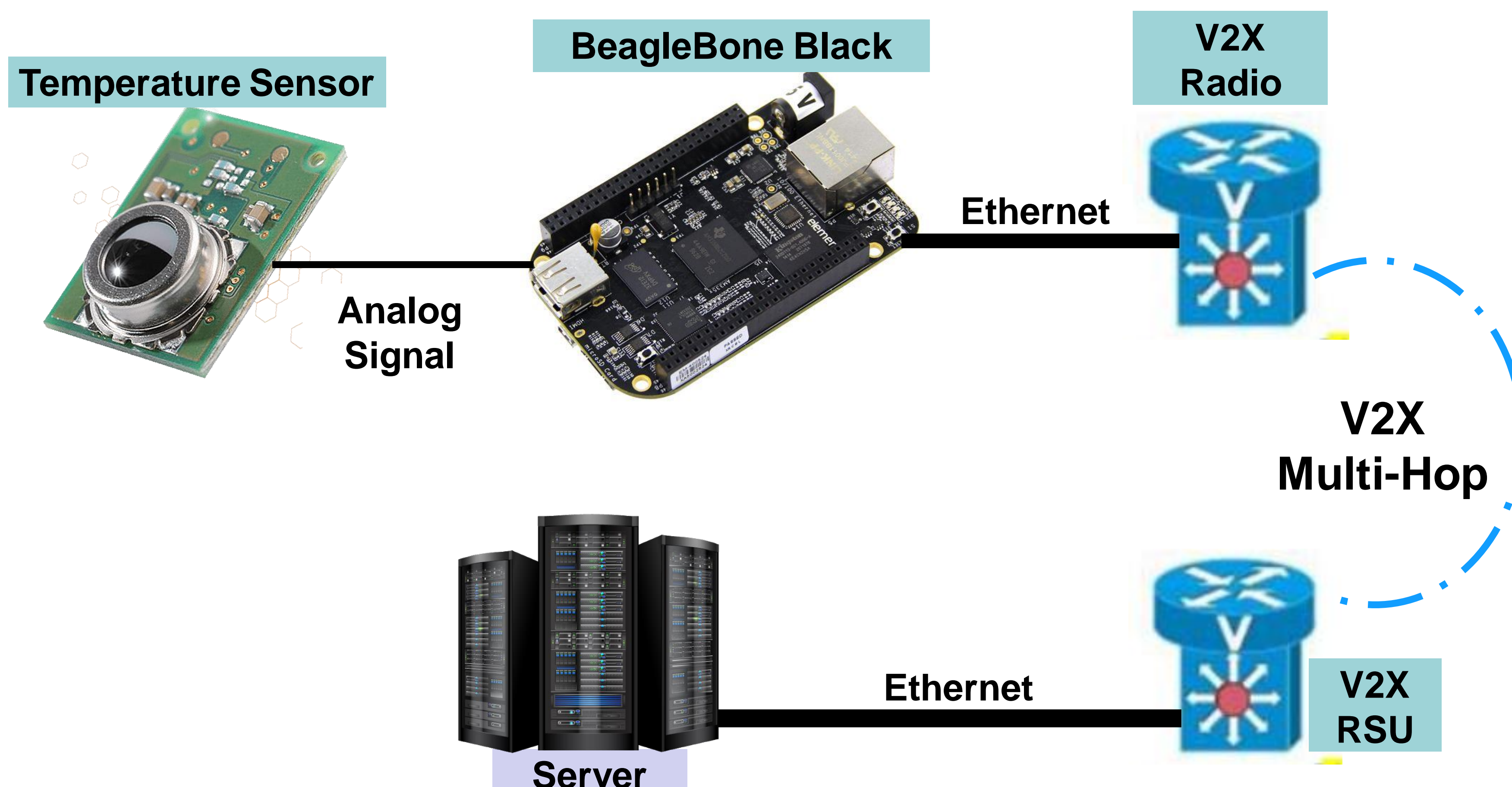
## Solution

Define new road sensor data V2X packet. Enable multi-hop addressing and mesh networking application layer.



## Methodology

A Beaglebone Black reads in the sensor's data, then passes information through a V2X gateway to be wirelessly transferred to a server via V2X.



Below is the overall structure of the V2X packet. The total length is 44 Bytes and recorded sensor data is located in the 42<sup>nd</sup> Byte.

V2X Version	Message Number	Bytes 1-5
Extension Field	V2X ID	Bytes 6-12
V2X Length	V2X Payload (Sensor Data)	Bytes 13-44

Special thanks to Tensor Corporation

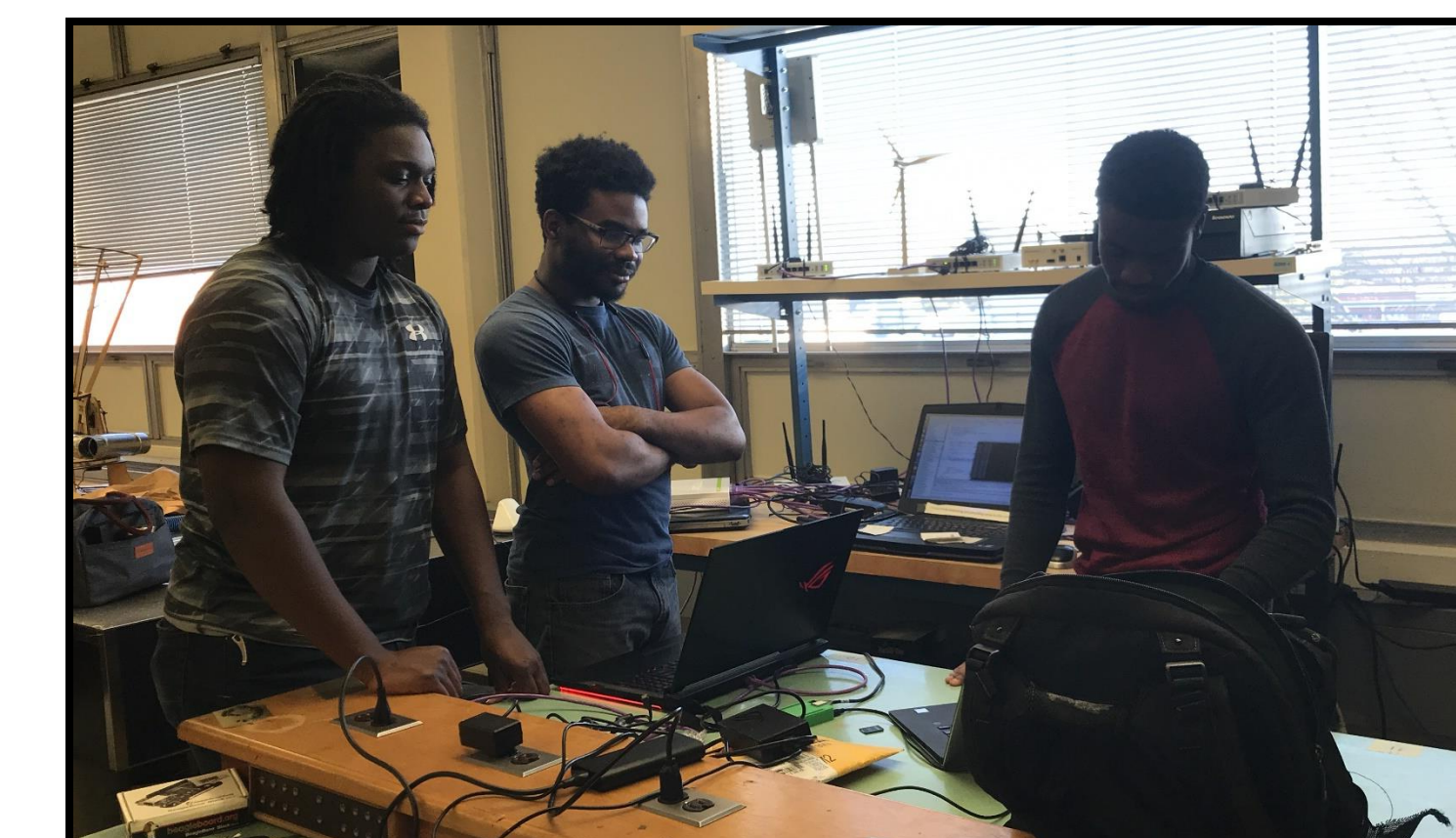
## Implications

- Safer roads
- Greener roads
- Predictive road health
- Reliable
- Secure



## Future Work

While this has been implemented in a controlled lab setting, real world is required to continue further development. Aspects such as sensor durability will need real world variability to undergo proper testing.



Location of future living lab