

Collaborative Data Upload for Scalable Vehicle Data Collection

Toyota Motor North America



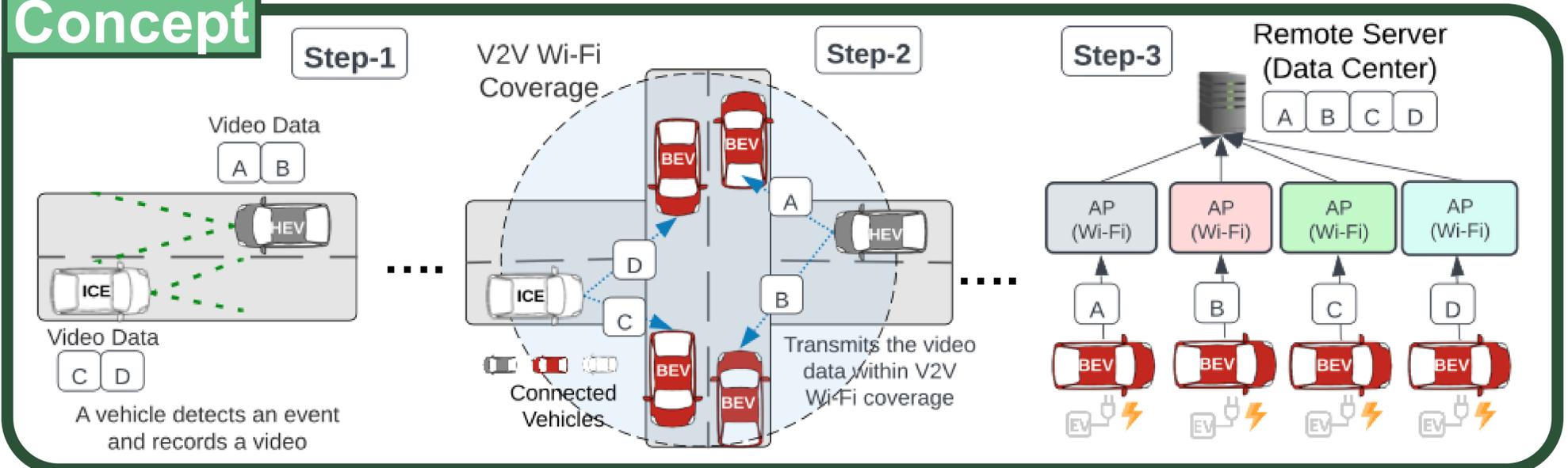
Goal

Data collection is vital to accelerate data-driven development. However, current data collection depends on cellular networks and only small amount of data is collected due to costs involved.

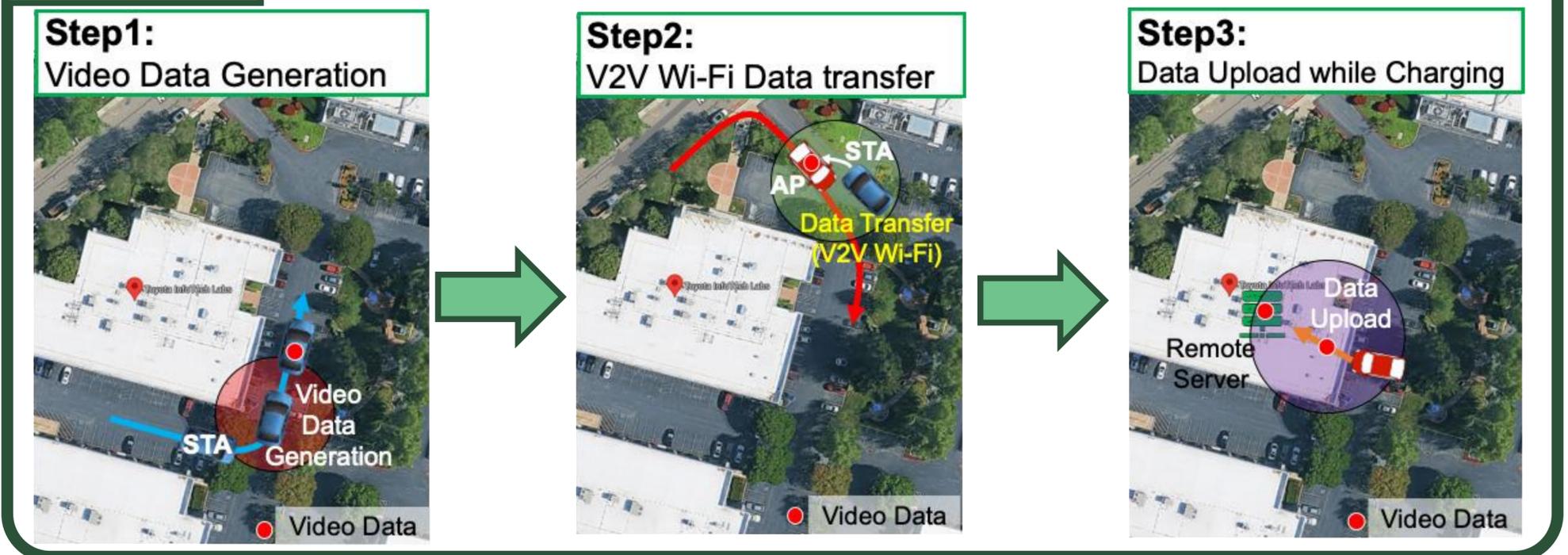
→ Collaborative data upload to **reduce cellular costs for accelerated data-driven development**

Demo Overview

Concept



Demo



Enabling Technology

Step1: Video generation

Record video by camera

Recorded video

Step2: V2V Wi-Fi video data transfer with TCP(BBR)

IEEE 802.11 AC with EAP-TLS WiFi

STA AP

Step3: V2I Wi-Fi data transfer while charging

WiFi 802.11 ac NGINX

AP Upload video data

Battery

ROS2

IMU Collector

Wi-Fi antenna

laptop

GPS

Wi-Fi box

Test vehicle setup for collaborative data upload