EMTRAC

Bicycle-Detection System

As cities have improved and expanded their bicycle infrastructure during the past 20 years, traffic departments have found themselves continually seeking to solve a historically difficult problem—*detecting and responding to bicycles at intersections*.

Known for its accuracy and reliability in detecting transit and first-response vehicles throughout North America, the EMTRAC system now utilizes its patented technology to offer a non-intrusive bicycle-detection solution.

The EMTRAC Bicycle Detection System includes a mobile-device app to help deliver accurate detection for bicyclists. The app recognizes when the cyclist is within a pre-defined detection zone and notifies the EMTRAC Priority Detector, which is installed in traffic-controller cabinets.

Intersection with Bicycle-Detection Zone Graphically Overlaid

Bicycle-Detection App

EMTRAC Priority Detector

Bicycle-Detection System Components

- **Mobile Device & App**: Installed on mobile devices, the Bicycle-Detection app enables communication with EMTRAC-equipped intersections. Transit and traffic agencies may also display custom messages on screen while the app operates in the background.
- **Priority Detectors**: Installed at intersections, these units receive vehicle-detection signals and output detection data to traffic controllers. The same detectors are used for bicycle detection, Transit Signal Priority (TSP), and Emergency Vehicle Preemption (EVP).
- **Data Center**: The Data Center provides a firewall-protected transfer point for relaying all necessary detection information between the mobile devices and the Priority Detectors.
- **Central Monitor Software**: Remotely displays a map with real time intersection and vehicle activity, logs detailed activity data, and records any changes in network-communication status.

Bicycle-Detection System Features & Benefits

Cost Effective / Multi-Use: Because this system utilizes traffic-cabinet mounted Priority Detectors, which are also be used to detect transit and first-response vehicles, much of the cost may be shared by other municipal or regional agencies.

Communications: Wayside Priority Detectors are equipped with 100 MB Ethernet ports and may receive commands from other agency vehicles using standard or custom protocols. Priority Detectors are also NTCIP ready and may act as DSRC pass-through components.

Expanded Vehicle Detection: Detect bicycles and motorcycles, as well as small vehicles that are difficult to detect by other methods. If the app is running, detection will occur without regard to weather, vehicle size, clothing color, or the material from which the vehicle is made.

System Security: The EMTRAC system has several different layers of protection, and all transmitted data is encrypted using the latest encryption algorithms.

Data Friendly: The app is optimized to reduce data usage based on a number of factors, such as proximity to detection zones and the amount of mobile-device movement. Data transmissions from the device are small, and update frequency is configurable so data usage can be kept low.

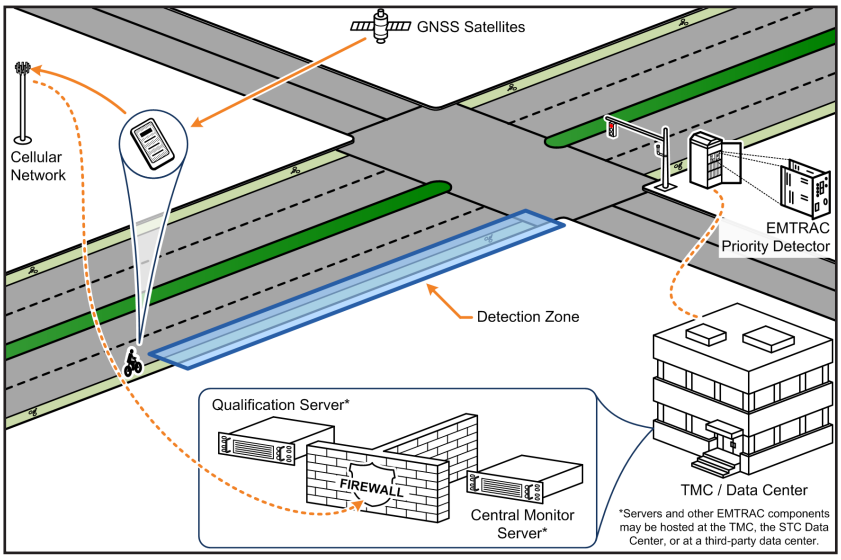

Illustration of Bicycle-Detection Components and Functionality

User Friendly: App users can choose to let the app run in the background, or they may also utilize notification options, such as signal-phase status and countdown timers.

Flexibility: Intersections may be installed on a per-route basis to allow for budget and time constraints. As additional intersections are added, the in-app map updates the available intersections to highlight desired bike routes.

Bicycle-Detection System Specifications

Server Requirements

Processor: Dual or Quad-Core, 2 GHz
Memory: 8 GB or higher
Hard Drive: 500 GB, Hot-Plug, RAID Controller
Operating System: Windows Server 2003 or later
Network: Ethernet 100Base-T/1000Base-T (gigabit preferred)

Detector Unit

Unit Power: 12ft, 120VAC, NEMA-Rated Power Cable In Braided Sleeve w/ AC Plug and Pigtails
Comm. Ports: (2)-100 Base-T Ethernet Ports (NTWRK & LOCAL), (1) USB Mini-B, and (1) Serial (RS-232)
Dimensions: Rack-Mount: H-4.5” (11.5 cm) x W-2.3” (6 cm) x D-6.95” (18 cm)
Detector In Enclosure: H-5.25” (13.5 cm) x W-2.75” (7 cm) x D-8” (20.5 cm)
Enclosure Material: Aluminum, NEMA Rated

*Specs fit specific models, but are included as representative figures only. Specs vary by model.

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