



Emergency Service Vehicle Priority System

The C-DAC Emergency Service Vehicle Priority System, EmSerV, has two modules (1) a controller unit installed inside the traffic signal controller and (2) the Vehicle Mount Unit (VMU) kept near the windshield of the Emergency Service Vehicle (ESV). EmSerV is implemented on geo-fencing technique using GPS coordinates. During an emergency trip the VMU broadcasts GPS coordinates (latitude and longitude) of the vehicle and its headway in every 500mSec using the 433MHz transmitter. The EmSerV controller is always in the listening mode waiting for signal from the VMU. Once it receives the coordinates of the Emergency Service Vehicle the EmSerV controller identifies the direction and location of the ESV. It then gives a command to the traffic signal controller for priority green signal for the direction of the approaching ESV. On detection of the ESV the Hooter installed at the traffic junction will generate audio alarm to alert the drivers, pedestrians and the police officer at the traffic junction about the arrival of the emergency service vehicle. The traffic signal will now terminate the currently running signal phase and opens right-of-way for the ESV. The signal sequence is resumed once the ESV clears the junction; also the Hooter is switched off. All approaches to the traffic junction are geo-coded in the EmSerV controller.

EMSERV CONTROLLER SPECIFICATION

CPU	: 32 bit ARM® Cortex-A8 Processor
Memory	: RAM DDR3-(512MB) Flash (4GB) External Memory: SD Card 2GB
Operating System	: Linux
Real Time Clock (RTC)	: On-board RTC with 10Year Battery Backup
RTC Update	: Through GPS
Police Panel Interface	: Optically isolated 8 inputs and 8 outputs
Hooter Interface	: IP66 hooter with 90 to 105db sound level
Central Server Connectivity	: 10/100Mbps RJ45 Ethernet port
Programming Facility	: Using webserver
Firmware update	: RJ45 Ethernet port
Data logging	: Local controller as file
Communication with VMU	: 433MHz Radio transceiver ~ 400m range
Compatibility Requirement	: Any signal traffic controller having Hurry Call Feature
Programmable Parameters	: Junction ID & Junction Name Number of Arms of the Junction Associated Hurry call number Geo-Fencing Coordinates for each arm Minimum And Maximum Heading angles Vehicle Authentication Details

EMSERV VMU SPECIFICATION

CPU	: 32 bit PIC32MX Processor
Memory	: 128 K Flash and 32K RAM
Operating System	: Free RTOS
GNSS	: GPS
Positional Accuracy	: 2.5 m
Controller Unit Communication	: 433MHz Radio transceiver ~ 400m range
Status Indication LEDs	: ON/OFF, Radio TX, GPS active
Programmable parameter	: Vehicle ID
Supply Voltage	: +5V DC +10% or +12V DC +10%
Temperature	: 0°C to +55° C
Relative Humidity	: 95% RH Non- condensing at +40 degree C
Mounting	: In-Vehicle

ELECTRICAL & MECHANICAL

Operating Voltage	: 24 V DC +/- 10%
Controller Mounting	: Inside the Traffic controller Cabinet
Temperature	: 0°C to +55° C
Relative Humidity	: 95% RH Non- condensing at +40 degree C

