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A Digital Mobile-Radio Identification System

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A DIGITAL MOBILE-RADIO IDENTIFICATION SYSTEM

Submitted to the Faculty of
Purdue University at Fort Wayne

EET 491
SENIOR DESIGN

by
Gerald A. Capehart
April 30, 1976

ABSTRACT

The Digital Mobile Radio Identification System is an electronic system which allows a vehicle equipped with a two-way radio, to automatically identify itself the moment the mobile operator removes the radio microphone from its special hang-up clip. The system consists of two major assemblies. The first is the encoder assembly which is attached to the mobile transmitter and causes it to send a digitally encoded tone burst back to the base station. The encoder is entirely solid state with programable identification using integrated circuits to control the keying of the mobile transmitter, and modulation of its carrier. Frequency shift keyed (FSK) digital information is used as modulation with audio tones of 1270 and 1070 HZ representing the digital logic states 0 and 1. The encoder also allows the mobile operator to choose three additional messages that may indicate service status. These will also be sent back to the base station along with the vehicles' identification. The three additional status messages are contained in memory circuits which may be exchanged for additional or different messages by merely changing the integrated logic memory element. Vehicle identification and status are decoded and displayed back at the base station by the system decoder. Also fully solid-state, the decoder makes use of LSI logic packages and a Burrough's

Self-Scan Display [®]. Once decoded and displayed, the vehicle identity remains on the screen until another unit sends its coded transmission. Such a system saves valuable air time and eliminates verbal misunderstandings in the case of an emergency.

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