

## Smart telephone design - caller identification and answering machine

### ABSTRACT

This paper presents some advance facilities and services related to the use of every day telephone. The Caller Identification and Answering Machine are the advance functions of telephone. The telephone system can be used as a tele-security system. This research work is based on potential use of low cost 8-bit microcontroller. Caller Identification (Caller ID) system is the feature of digital telephone network and it is supported by Signaling System No. 7 (SS 7) which uses a separate call data circuit. The Caller ID information is transmitted on the subscriber loop using Frequency Shift Key (FSK) modem tones and data is embedded between the first and second ring of the ringing signal. A Caller ID decoding circuit has been designed for decoding frequency shift keying (FSK) modem tone and an appropriate ASCII code has been displayed in LCD display unit. Answering machine is a device that answers the telephone calls in absence of called party and records the incoming message into cassette. A ring detector circuit, outgoing Message (OGM) sender circuit, tape driver circuit, dual tone multiplexed frequency (DTMF) encoder circuit and calling party control (CPC) circuit have been developed for answering machine device. DTMF generator circuit and sensor signal management circuit has been integrated to provide the tele-security system. PIC 16C84 (8-bit microcontroller) controls all logic operations as it was programmed. A software has been made in Assembly language for programming the microcontroller.

**Keyword:** Caller identification; Answering machines; Telephone systems