Data over GSM voice channel:

Objective:

To achieve end to end data communication over mobile voice channel.

Problem Statement:

In various scenarios there is requirement of sending data using the GSM voice channel, specifically in cases where availability of data channel is not guaranteed. To overcome this there is a requirement of sending **low bit rate** data communication over GSM **voice channel**.

To achieve this a separate **module** need to be developed which can get **interfaced** to voice port of any mobile phone and send the data using voice channel. This module is referred as "Universal Data Communication Module (UDCM)". A Use case diagram of the same is mentioned in Fig 1.

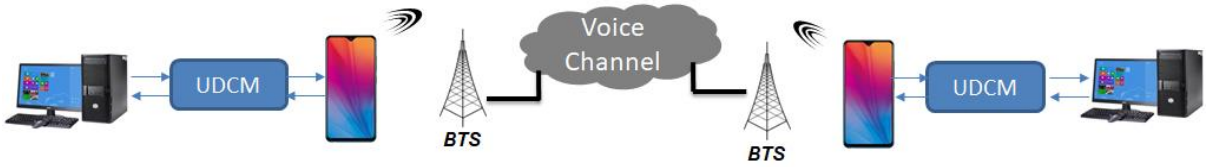

Fig 1. Use case of Universal Data Communication Module

Universal Data Communication Module:

UDCM takes the data from PC, modulates it and then transfers the modulated data to mobile at the transmitter end (and vice-versa at receiver).

The essential requirements of UDCM module are

1. UDCM shall provide minimum 2400 bps, reliable, error free, full duplex data communication over GSM voice channel.
2. UDCM shall feed the modulated signal to the mobile phone at 3.5mm jack.
3. UDCM shall use audio path of mobile phone (not the data path)
4. UDCM shall perform seamlessly on any mobile phone (i.e. Samsung/One Plus/Apple etc. brand of phones). The performance shall not differ from one model to another.
5. UDCM shall not use VoIP path (i.e. it should work in the absence of mobile data/Wi-Fi of the phone).
6. UDCM shall not use any data compression techniques.
7. Appropriate FEC, modulation techniques can be used to achieve the throughput.