Real-Time Audio Capture, Compression & Streaming Service on a PDA

C. García, F.J. Suárez
Department of Computer Science, 33211 Gijón, Spain
fran@atc.uniovi.es

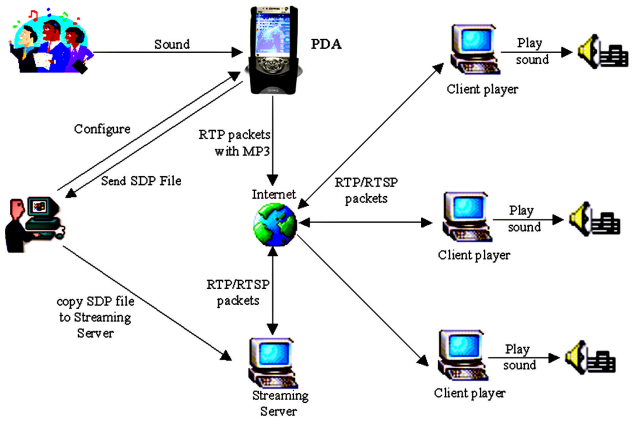
University of Oviedo

Architecture and Technology of Computers

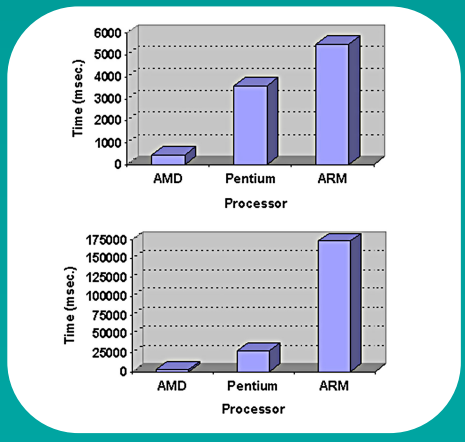
- Abstract -

This paper shows how a PDA (Personal Digital Assistant) can be converted into an audio source within a private network or the web, providing capture, compression and streaming of audio as a real-time mobile service. Once the sound around the PDA has been captured and compressed to mp3 format, the service allows it to be broadcast to a Streaming Server. Once the audio reaches the Streaming Server, anyone with a network connection is able to receive and play it. The service provides different configuration parameters to control audio quality and broadcasting performance. For audio quality, different bitrate and frequency values can be chosen. For broadcasting performance, different packet-length values can also be chosen, and the bitrate mode can be automatically controlled. The paper also includes the performance tuning of the compressor and experimental results using both wired and wireless networks.

- Service operation -



- Audio compression -

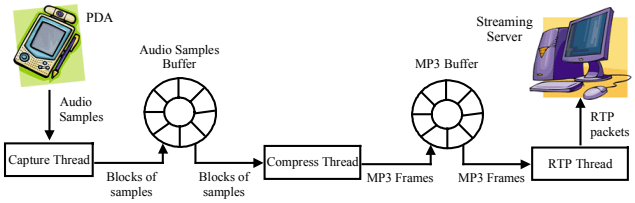


- real-time mp3 encoder thanks to:
  - ✓ source code adaptation
  - ✓ performance tuning

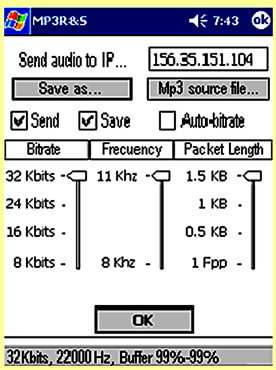
- Audio streaming -

- ✓ Allows real-time audio playing
- ✓ Quick Time & Helix Streaming Servers
- ✓ WinAmp & ReaOne Players
- ✓ RTSP/RTP/RTCP/SDP protocols

- Implementation details -



- User interface -



- Experimentation -

- ➢ PDA HP iPAQ 3970 (400 Mhz.)
- ➢ Bluetooth communication:
  - ✓ bandwidth enough, maximum quality
- ➢ Modem communication:
  - ✓ poor bandwidth, auto-bitrate control

- Application -

Broadcasting of live interviews, news reports, press conferences, etc.