

2018 S2 DCNC A1 Task 2

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1.



2.

Alice's Device: Translate Analog data (Alice's voice) to digital data and send it to server

Proxy Server: A proxy server is a server (a computer system or an application) that acts as an intermediary for requests from clients seeking resources from other servers. A client connects to the proxy server, requesting some service, such as a file, connection, web page, or other resource available from a different server and the proxy server evaluates the request as a way to simplify and control its complexity (En.wikipedia.org, 2018).

Gateway: A gateway is a piece of networking hardware used in telecommunications via communications networks that allows data to flow from one discrete network to another. A network gateway may contain devices such as protocol translators, impedance matching devices, rate converters, fault isolators or signal translators as necessary to provide system interoperability. It also requires the establishment of mutually acceptable administrative procedures between both networks. It can also work as a protocol translation/mapping gateway interconnecting networks with different network protocol technologies by performing the required protocol conversions (En.wikipedia.org, 2018).

PSTN: The PSTN consists of telephone lines, fiber optic cables, microwave transmission links, cellular networks, communications satellites, and undersea telephone cables, all interconnected by switching centers, thus allowing most telephones to communicate with each other (En.wikipedia.org, 2018).

Bob's Device: Receive the analog data

3:

- Human sound
- Microphone

To improve quality: Use higher quality microphone to collect higher range of sound.

- Analog to Digital converter

To improve quality: Use higher bitrate to create digital signal that is closer to the original signal.

- Digital Processor

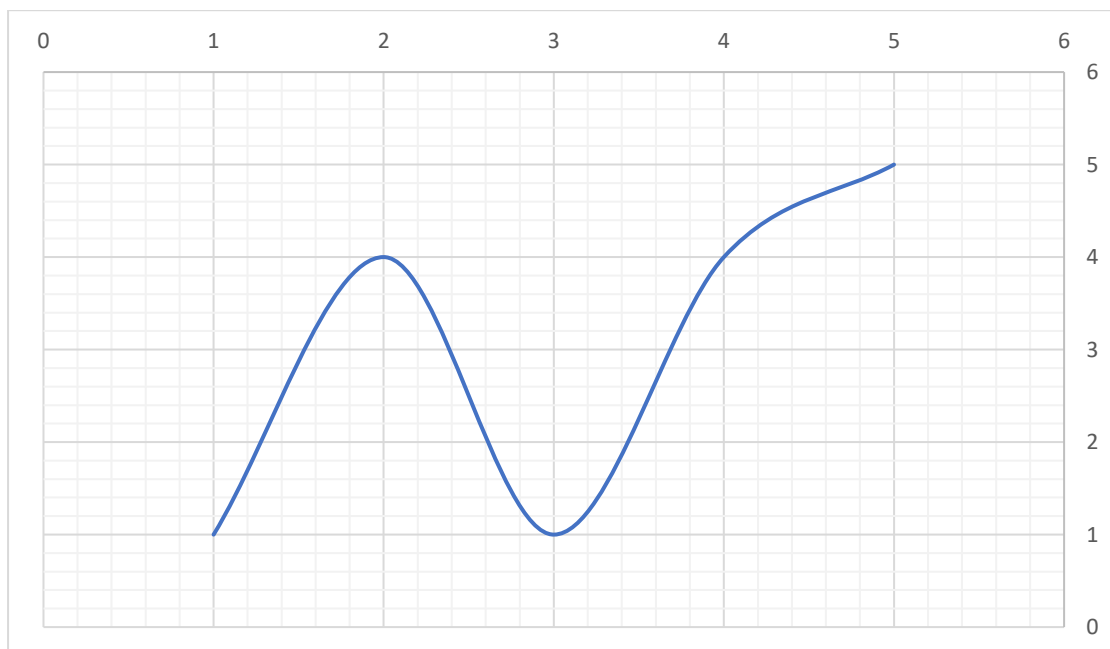
To improve quality: Do less extra process to avoid error creations

- Digital to Analog converter

To improve quality: Use a device that is capable of a complete process of the data that is received.

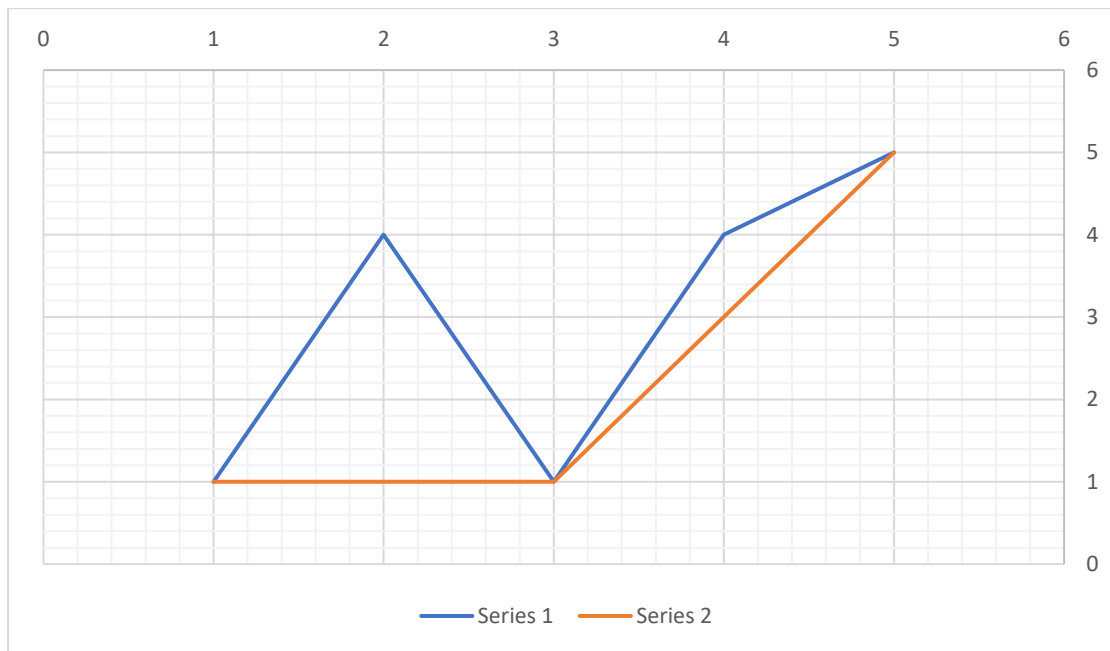
- Sound received

e.g. Original Signal:



Series 1: One sample each big gap

Series 2: One sample every 2 big gaps



We can see that series 1 shows identical shape to original signal.

But series 2 is completely different to the original which means huge quality lost.

Reference:

En.wikipedia.org. (2018). *Proxy server*. [online] Available at: https://en.wikipedia.org/wiki/Proxy_server [Accessed 19 Aug. 2018].

En.wikipedia.org. (2018). *Gateway (telecommunications)*. [online] Available at: [https://en.wikipedia.org/wiki/Gateway_\(telecommunications\)](https://en.wikipedia.org/wiki/Gateway_(telecommunications)) [Accessed 19 Aug. 2018].

En.wikipedia.org. (2018). *Public switched telephone network*. [online] Available at: https://en.wikipedia.org/wiki/Public_switched_telephone_network [Accessed 19 Aug. 2018].