Team 9 Report

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ECE 4564, Assignment1

ReadMe

Documentation

Client Processes

- Reads QR code with OpenCV
- Decodes question with pyzbar
- Encrypts question and computes checksum with Cryptography Fernet
- Builds and sends question payload with pickle and sockets (connection-oriented)
- Waits and receives answer, verifies checksum and decrypts answer with Fernet
- Performs a Text-to-Speech translation using watson-developer-cloud library. Uses the Watson key and URL with the text to speech API to create an mp3 file
- Plays the file audio answer file with omxplayer.

Server

- Waits and receives question from client, then compares checksum and decrypts question with Fernet
- Downloads and plays text-to-speech question with IBM-watson and omxplayer
- Sends question and receives answer with Wolfram Alpha
- Build and sends answer to client with sockets

Setup

- Install libraries: OpenCV, pyzbar, Cryptography, pickle, Watson developer cloud, Wolfram Alpha
- Create QR code question with the QR code generator
- On Client start openCV with:
  “source.profile”
  “workon cv”
  “cd Camera-Tutorial/”
- Start Server with “python3 server.py -sp 50000 -z 1024”
- Start Client with “python3 client.py -sip SERVER_IP -sp 50000 -z 1024”
- Hold camera to QR Code
- Watch and listen for the resulting question and answer