

1. Introduction:

To transmit the student data to the Central Server for obtaining an authentication key to unlock the door for valid students.

2. Scope: Applicable for the Twinkle Door Access System

3. The folder where the program resides and how to execute them from the start:

In Local Server (Raspberry Pi, IP addr: 10.32.26.20):

Location: /home/pi/Desktop/Integrate_DB_TCP/Multiuser

Name of the file: Data_Store_DB_v3.py

Dependent file: Data_Connct_Cent_Serv.py

How to execute the program:

- Open the terminal.
- Change the directory by typing:
“cd /home/pi/Desktop/Integrate_DB_TCP/Multiuser”
- To run the program type:
“python3 Data_Store_DB_v3.py.”

In Central Server (Raspberry Pi, IP addr:10.32.26.70)

Location: /home/pi/Desktop/Integrate_DB_TCP/

Name of the file: Data_Store_DB_v2.py

How to execute the program:

- Open the terminal.
- Change the directory by typing:
“cd /home/pi/Desktop/Integrate_DB_TCP/”
- To run the program type:
“python3 Data_Store_DB_v2.py.”

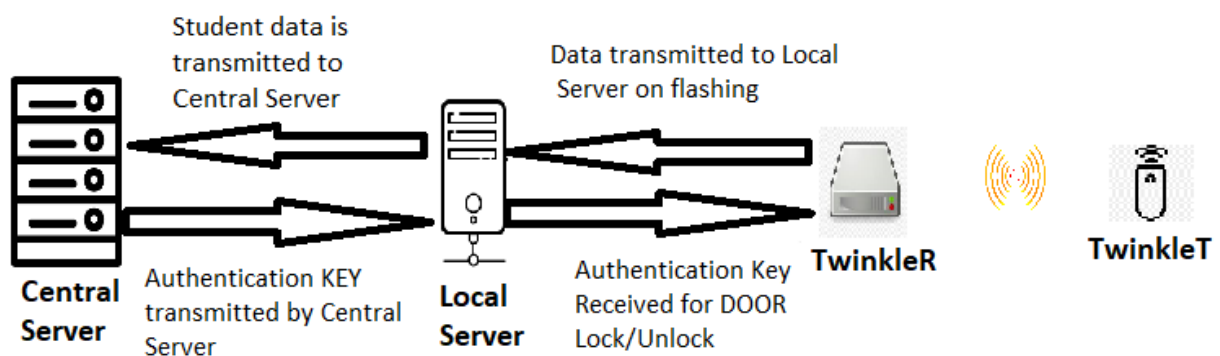
4. **Guide to install the program and configure various parameters:** The program is a self-written script.

Parameters to be configured:

- In the Central Server:
 1. In the program `Data_Store_DB_v2.py`, update the parameter:
“`list_valid_twinklet_for_twinkler1`”
Every student has a unique TwinkleT ID, on updating the above parameter with the TwinkleT ID, only the valid students will get the authentication.
 2. In the program `Data_Store_DB_v2.py`, update the port number in the main function accordingly.
- In the Local Server:
 1. In the program `Data_Connect_Cent_Serv.py`:
In the function `client_program ()`:
Update the Central Server’s IP address and port number accordingly.

NOTE: The port number in “Data_Store_DB_v3.py” of Central Server and port number in “Data_Connect_Cent_Serv.py” of Local Server has to be same.

5. **Detailed Description with diagrams:**

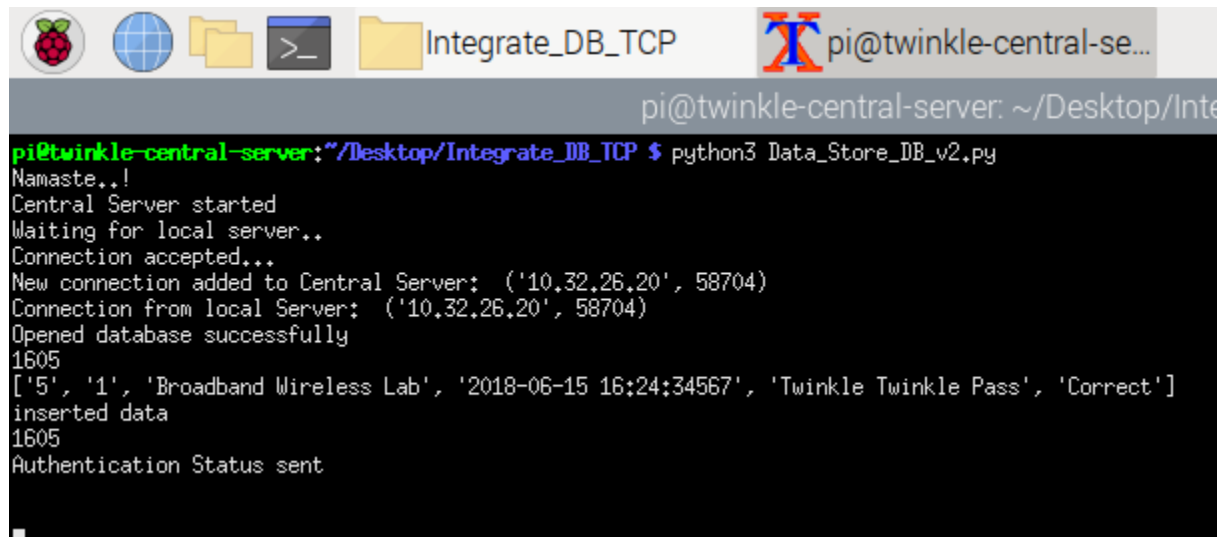


- On student flashing the device (TwinkleT) to the TwinkleR, the data is transmitted to the Local Server.
- Local Server in turn transmits this data to the Central Server.

- On receiving this data, the Central Server reviews the TwinkleT ID and if the ID is included in the valid list of TwinkleT's, an "Open" Key is transmitted to the Local Server.
- The Local Server transmits it to the TwinkleR, for unlocking the door.

Screenshots:

Central Server: Terminal view on reception of Students data:



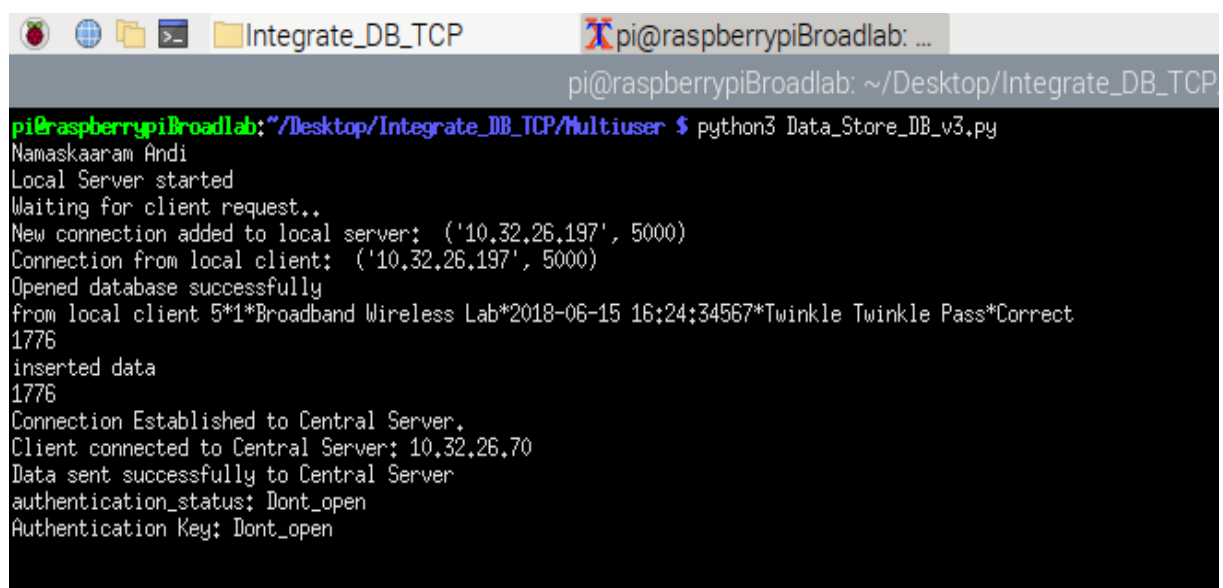
```

pi@twinkle-central-server: ~/Desktop/Integrate_DB_TCP
pi@twinkle-central-server:~/Desktop/Integrate_DB_TCP $ python3 Data_Store_DB_v2.py
Namaste..!
Central Server started
Waiting for local server..
Connection accepted...
New connection added to Central Server: ('10.32.26.20', 58704)
Connection from local Server: ('10.32.26.20', 58704)
Opened database successfully
1605
['5', '1', 'Broadband Wireless Lab', '2018-06-15 16:24:34567', 'Twinkle Twinkle Pass', 'Correct']
inserted data
1605
Authentication Status sent

```

Local Server:

- Terminal view when a valid student flashes the TwinkleT:

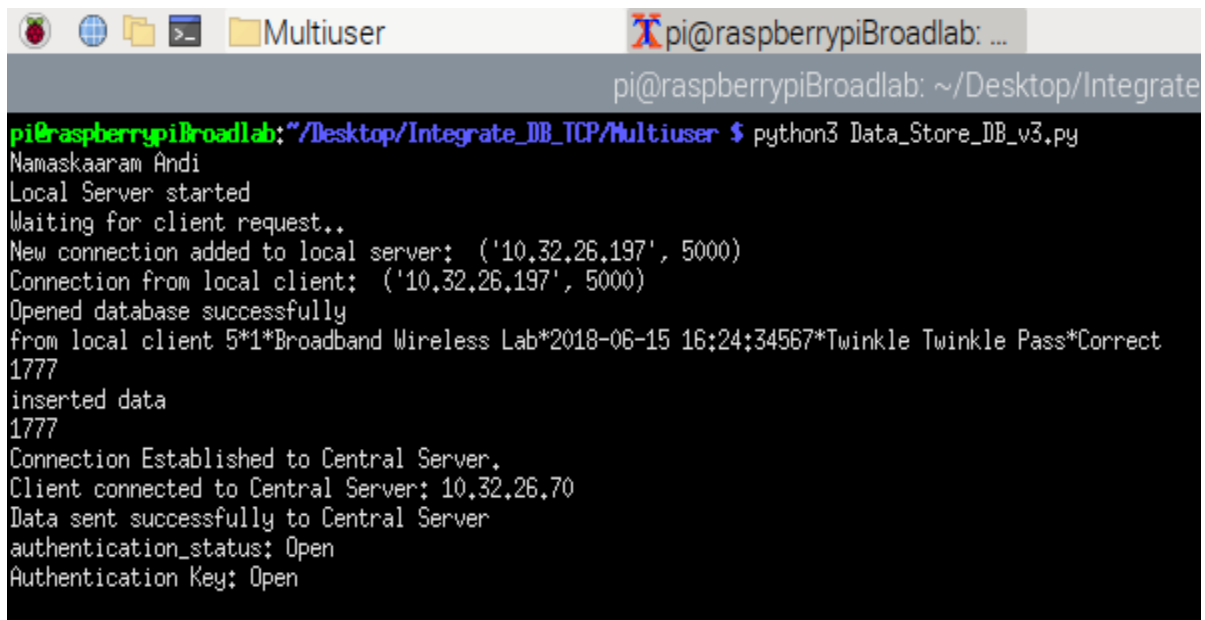


```

pi@raspberrypiBroadlab: ~/Desktop/Integrate_DB_TCP
pi@raspberrypiBroadlab:~/Desktop/Integrate_DB_TCP/Multiuser $ python3 Data_Store_DB_v3.py
Namaskaaram Andi
Local Server started
Waiting for client request..
New connection added to local server: ('10.32.26.197', 5000)
Connection from local client: ('10.32.26.197', 5000)
Opened database successfully
from local client 5*1*Broadband Wireless Lab*2018-06-15 16:24:34567*Twinkle Twinkle Pass*Correct
1776
inserted data
1776
Connection Established to Central Server.
Client connected to Central Server: 10.32.26.70
Data sent successfully to Central Server
authentication_status: Dont_open
Authentication Key: Dont_open

```

- Terminal view when an invalid student flashes the TwinkleT:



```
pi@raspberrypiBroadlab: ~/Desktop/Integrate_DB_TCP/Multiuser
pi@raspberrypiBroadlab: ~/Desktop/Integrate_DB_TCP/Multiuser $ python3 Data_Store_DB_v3.py
Namaskaaram Andi
Local Server started
Waiting for client request..
New connection added to local server: ('10.32.26.197', 5000)
Connection from local client: ('10.32.26.197', 5000)
Opened database successfully
from local client 5*1*Broadband Wireless Lab*2018-06-15 16:24:34567*Twinkle Twinkle Pass*Correct
1777
inserted data
1777
Connection Established to Central Server.
Client connected to Central Server: 10.32.26.70
Data sent successfully to Central Server
authentication_status: Open
Authentication Key: Open
```

6. Details about any scripts or 3rd party programs:

No third-party program is implemented here

7. Platforms required for running the programs (PC/RPi ...):

Raspberry Pi, Windows with Visual Studio, PyCharm, Linux Systems.