

Dhruv Sandesara and Sean Tremblay

Deliverables (exact components of the lab report)

A) Objectives (1/2 page maximum)

- B) Implement a system that connects to the internet via an IEEE 802.11 – **Wifi** module, CC3100
- C) Use DNS to convert name to IP address
- D) Configure a smart object that can retrieve data from a weather server using TCP
- E) Design a smart object that can store data onto an internet server using TCP
- F) [Implement a web server to log data from your smart object](#)

G) Hardware Design (only if needed for the sensor)

NO SENSOR USED JUST ADC USED AND CONNECTED TO EITHER THE 3.3 V OR THE 0 V LINE

H) Software Design (a hardcopy software printout is due at the time of demonstration)

DID THAT. AND SUBMITTED ON GITHUB AT TIME OF SUBMISSION

I) Measurement Data

Percentage of lost packets. Basically how reliable is the system (assuming you have a connection to the AP)

0 PERCENT PACKETS WERE DROPPED AS IN TCP IT VERIFIES AT EACH TURN

Minimum, maximum, and average times from 10 transmissions to openweathermap.org

ALL DATA VALUES:

449
170
227
169
333
425
317
256
203
207

MIN: 169 MAX: 449 AVG: 275.6

Minimum, maximum, and average times from 10 transmissions to [your server](#)

[ALL DATA VALUES](#)

[371](#)
[247](#)
[192](#)
[291](#)
[201](#)
[317](#)
[194](#)
[87](#)
[234](#)
[337](#)

[MAX: 371](#) [MIN: 87](#) [AVG: 247.1](#)

J) Analysis and Discussion (1 page maximum)

- 1) In the client server paradigm, explain the sequence of internet communications sent from client to server and from server to client as the client saves data on the server. Assume the client already is connected to the wifi AP and the client knows the IP address of the server.

THE CLIENT SENDS THE SERVER A REQUEST, WITH A PORT NUMBER IN WHICH WAY THE SERVER CAN NARROW DOWN WHAT THE REQUEST IS FOR. EX 80 IS FOR HTTP REQUEST AND 443 FOR HTTPS. THEN THE SERVER CREATES A SOCKET AND REPLIES TO THE CLIENT. THE CLIENT THEN LISTENS TO THIS DATA AND STORES IT. THIS IS HOW THEY TALK.

- 2) What is the purpose of the DNS?

THE DNS SERVER ALLOWS US TO GET THE IP ADDRESS OF A SERVER BY JUST KNOWING ITS URL NAME. ALSO AS THEY ARE STATIC WE ALWAYS KNOW SOME IP ADDRESSES OF DNS SERVERS AND THAT WAY WE NEVER NEED TO FIND OUT THEIR IP ADDRESSES

- 3) What is the difference between UDP and TCP communication? More specifically when should we use UDP and when should we use TCP?

WELL UDP IS UNRELIABLE AND FAST WHEREAS TCP IS RELIABLE AND SLOW. THUS UDP DOESN'T VERIFY IF EACH PACKET IS REACHED OR NOT AS WE DON'T CARE IF ONE FRAME IS MISSING FROM A YOUTUBE VIDEO. TCP RATHER MAKES SURE EACH PACKET REACHED AND CORRECTLY WHICH IS REQUIRED FOR LETS SAY BANK TRANSACTION.

Extra credit

- 2) Combine Labs 3 and 4 and use the GMT in the weather packet to synchronize their alarm clock. In order to make it all fit within 32k limit you can use CCS or simplify the clock.

WE DID THIS AT THE DEMO