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## Deliverables (exact components of the lab report)

1. Objectives (1/2 page maximum)
2. Implement a system that connects to the internet via an IEEE 802.11 – **Wifi** module, CC3100
3. Use DNS to convert name to IP address
4. Configure a smart object that can retrieve data from a weather server using TCP
5. Design a smart object that can store data onto an internet server using TCP
6. Implement a web server to log data from your smart object
7. 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

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

DID THAT. AND SUBMITTED ON GITHUB AT TIME OF SUMBISSION

1. 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

1. Analysis and Discussion (1 page maximum)
2. 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 NUBER IN WHICH WAY THE SERVER CAN NARROW DOWN WHAT THE REQUEST IS FOR.EX 80 IS FOR HTTP REQUEST AND 443 FOR SMP. THEN THE SERVER CREATS A SOCKET AND REPLIES TO THE CLIENT. THE CLIENT THEN LISTNES TO THIS DATA AND STORES IT. THIS IS HOW THEY TALK.

1. What is the purpose of the DNS?

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

1. 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 RTHER 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**