March 5, 2016

Lecture 2

**End of discussion last week**

* Dead-end cul-de-sac
* Because of technology we have, we can put everything on chip and can’t take chip off things
* Can’t lower the voltage – using more power when not using power
* Human brain can never: DEAL WITH REALLY LARGE NUMBERS

**ECS154A Review**

\*Draw 1-bus machine\*

**(Register’s you’ve built)**

mDR PC IR ACG #1

BUS

(register here because single bus)

MEM (Need way to talk to mem)

ALU

MAR (register for ALU result)

**Tri-state device:** A controller to connect or disconnected (not physically) connected to the BUS

**ALU:** Combinational circuit, just has an output

Cannot have multiple devices driving bus at the same time

**FDE (Fetch, decode, execute)**

* Put PC on BUS (PC->BUS), BUS->MAR(Memory address register), READ (for memory), **BUS->X (Now X has the PC)**, #1->BUS, ADD, Load Z
* MDR(Mem data register)->BUS, BUS->IR
* Z->BUS, BUS->PC
* INC(increment) ACC(accumulator)
* Take instruction register, based on bit patterns, going to cause certain things to happen ACC->BUS, BUS->X, #1->BUS, ADD, Load Z, Z->BUS, B->ACC