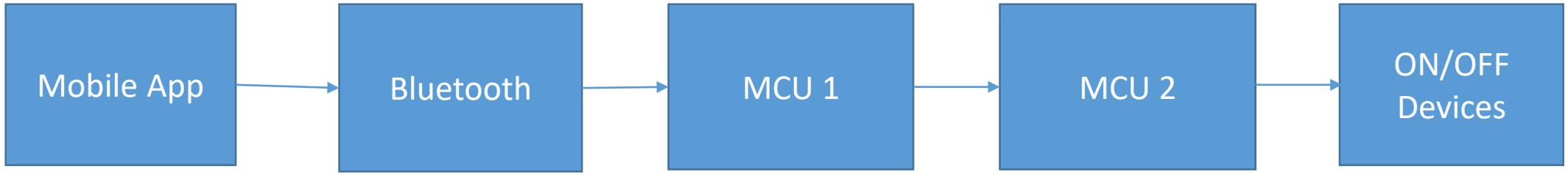
AMIT’s Graduation Project

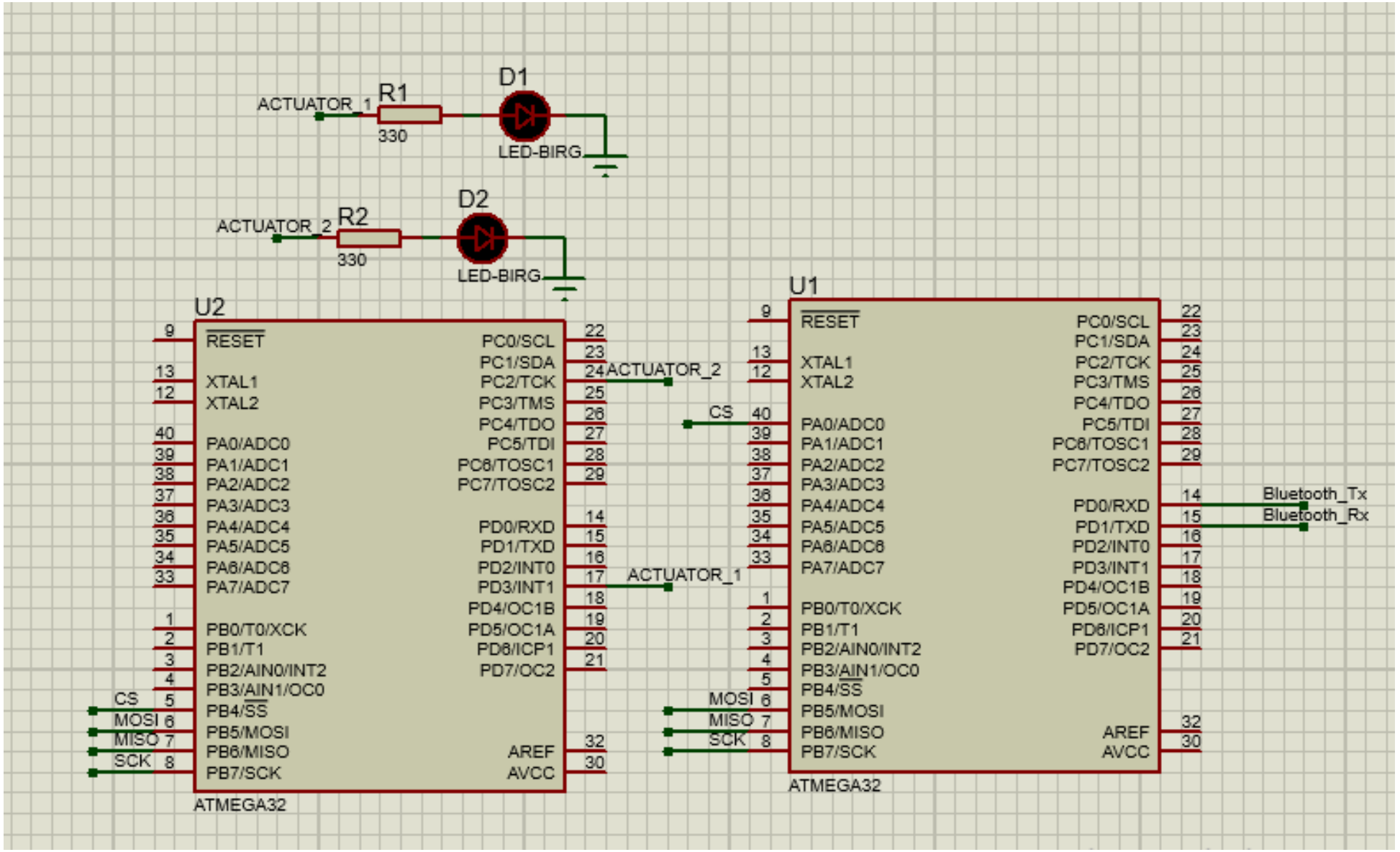
AMIT-Learning

Project Description

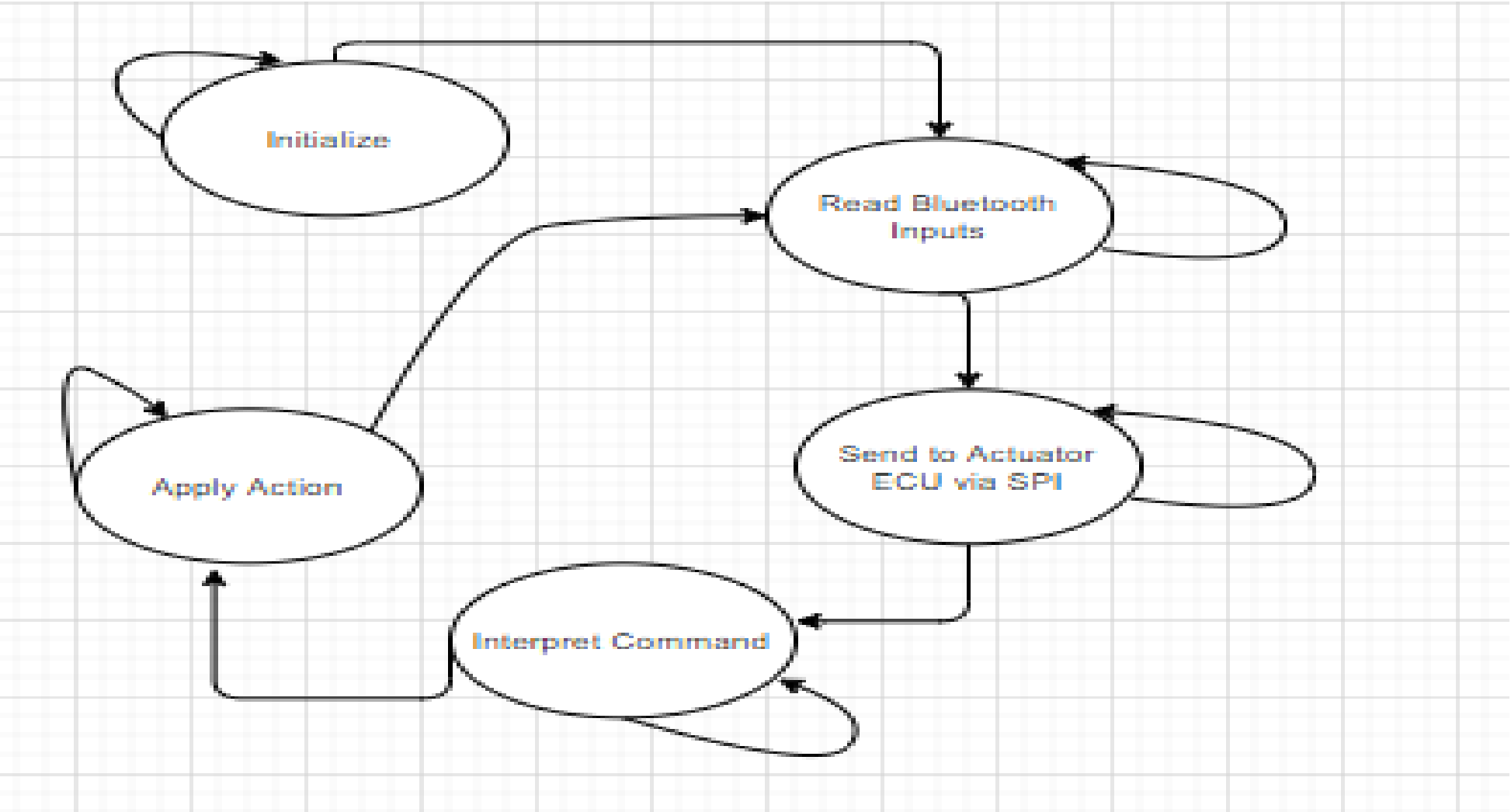
- This project is Smart Home based Bluetooth where we want to control home appliance wirelessly using Mobile App via Bluetooth.
- Two ECU's Communicate with each other the first is a control ECU which takes the input from Bluetooth and send it to the Sink (Actuator) ECU via SPI to interpret which action should be taken
- Let's have an example



Schematic


ACTUATOR_1
R1
330
D1
LED-BIRG
ACTUATOR_2
R2
330
D2
LED-BIRG
U2
RESET
XTAL1
XTAL2
PA0/ADC0
PA1/ADC1
PA2/ADC2
PA3/ADC3
PA4/ADC4
PA5/ADC5
PA6/ADC6
PA7/ADC7
PB0/T0/XCK
PB1/T1
PB2/AIN0/INT2
PB3/AIN1/OC0
PB4/SS
PB5/MOSI
PB6/MISO
PB7/SCK
PC0/SCL
PC1/SDA
PC2/TCK
PC3/TMS
PC4/TDO
PC5/TDI
PC6/TOSC1
PC7/TOSC2
PD0/RXD
PD1/TXD
PD2/INT0
PD3/INT1
PD4/OC1B
PD5/OC1A
PD6/ICP1
PD7/OC2
AREF
AVCC
ATMEGA32
CS
MOSI
MISO
SCK
ACTUATOR_2
ACTUATOR_1
U1
RESET
XTAL1
XTAL2
PA0/ADC0
PA1/ADC1
PA2/ADC2
PA3/ADC3
PA4/ADC4
PA5/ADC5
PA6/ADC6
PA7/ADC7
PB0/T0/XCK
PB1/T1
PB2/AIN0/INT2
PB3/AIN1/OC0
PB4/SS
PB5/MOSI
PB6/MISO
PB7/SCK
PC0/SCL
PC1/SDA
PC2/TCK
PC3/TMS
PC4/TDO
PC5/TDI
PC6/TOSC1
PC7/TOSC2
PD0/RXD
PD1/TXD
PD2/INT0
PD3/INT1
PD4/OC1B
PD5/OC1A
PD6/ICP1
PD7/OC2
AREF
AVCC
ATMEGA32
Bluetooth_Tx
Bluetooth_Rx

Finite State Machine of the System



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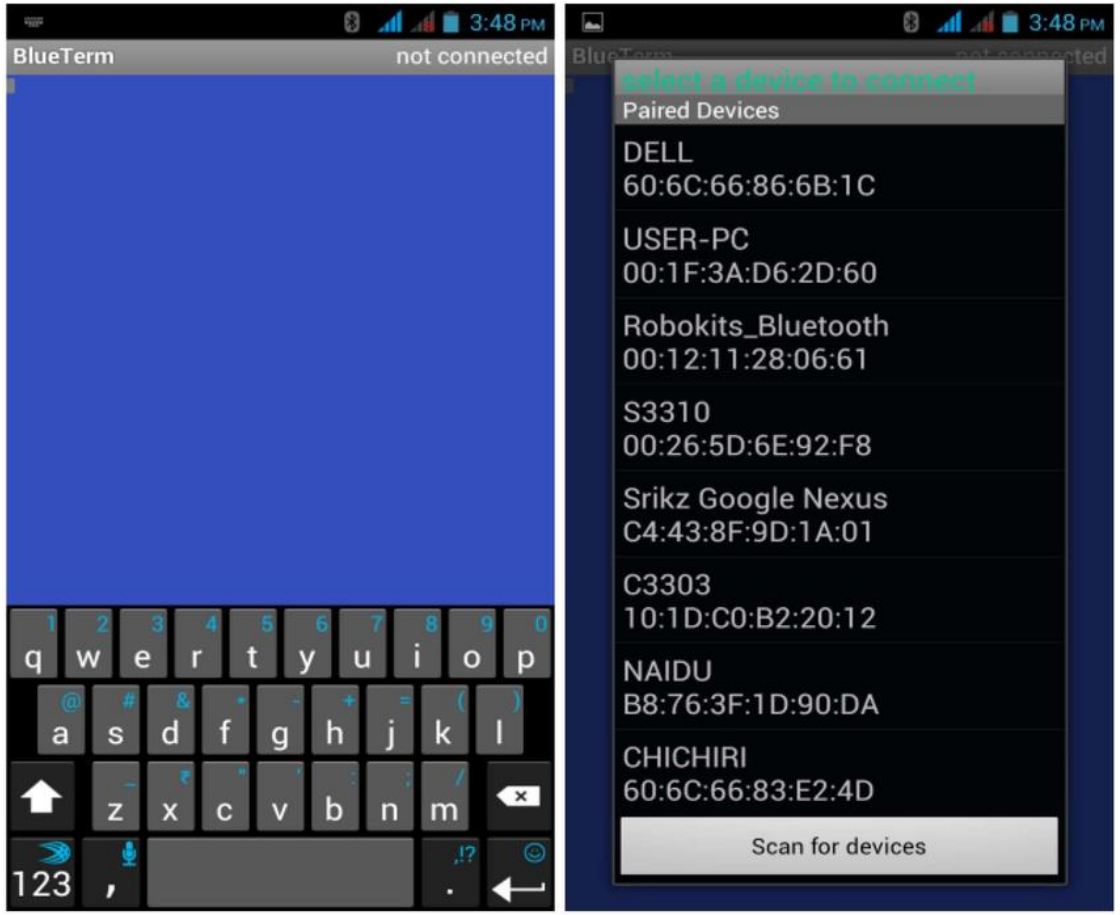
Implementation tips

- You can implement this project using a scheduler or not.
- Use best practice and Generic coding Standards
- Preferred to have layered Architecture
- Test each module separately
- Integrate module by module , don’t integrate the whole project at once

bile App to use

- You can use Blueterm which can be easily downloaded from Google play
- You need to pair with the Bluetooth first
- Then try to connect



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What Do you need to Deliver?

- Project Code based on Layered Architecture and Modular Programming
- Project Simulation on Proteus
- Document that describes the Architecture and Design

Example Projects

- https://github.com/AMITLearningGit/AMIT_Grad_Projects