

# “Smart Home”

ECE 511 - Group 8

Progress Report 1

Presented By

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# Smart is the NEW 'IN'



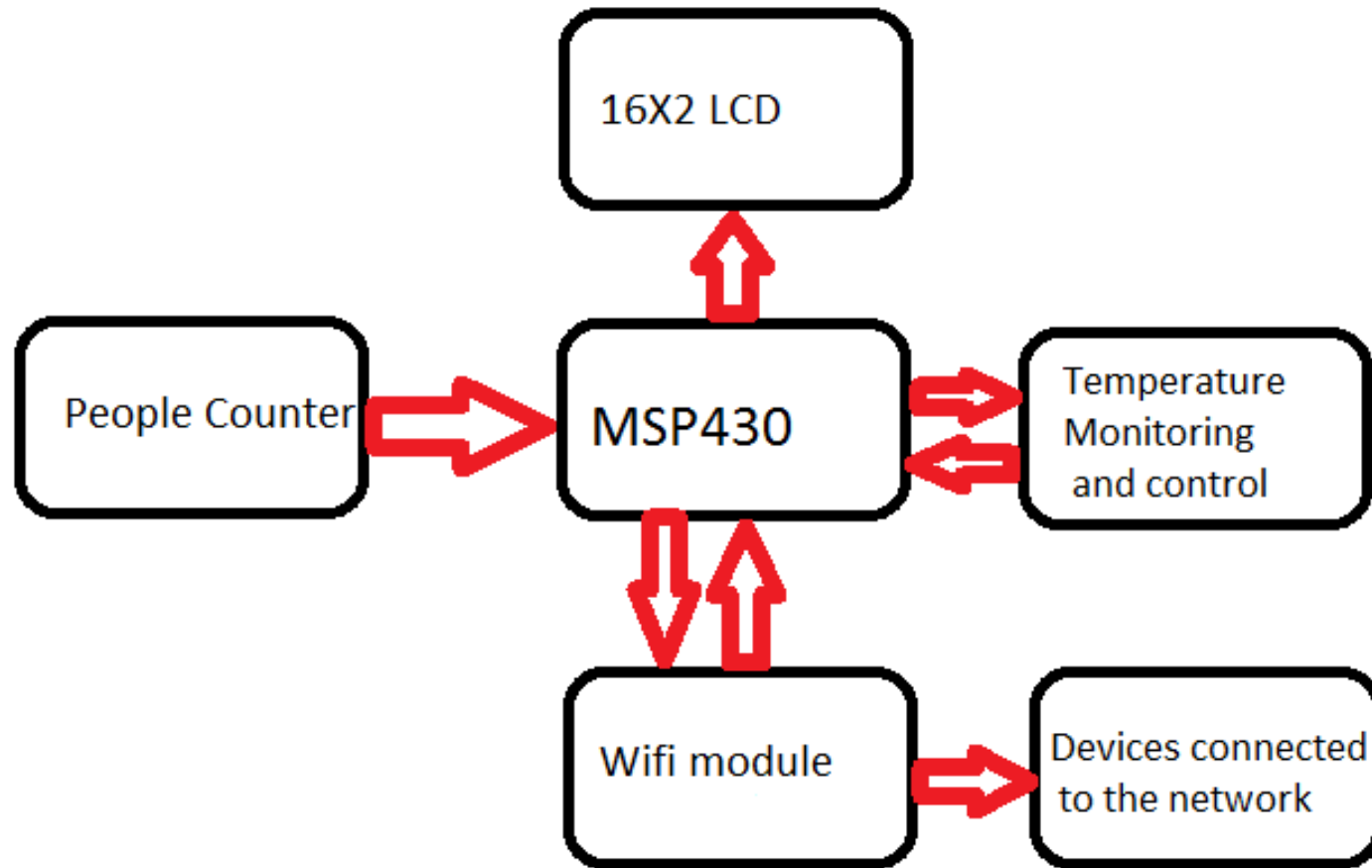




- Smart homes are just that ,”SMART”.
- A home that listens to you
- Adjusts to your lifestyle.
- Controlled remotely
- Temperature
- People counter and lighting

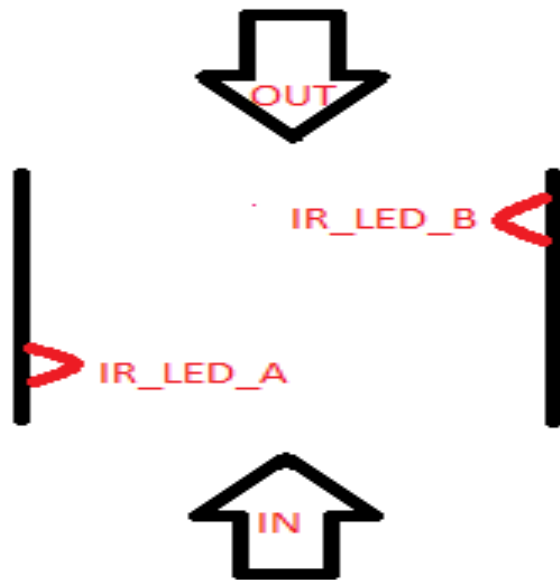


# Block Diagram



# People counting and lighting

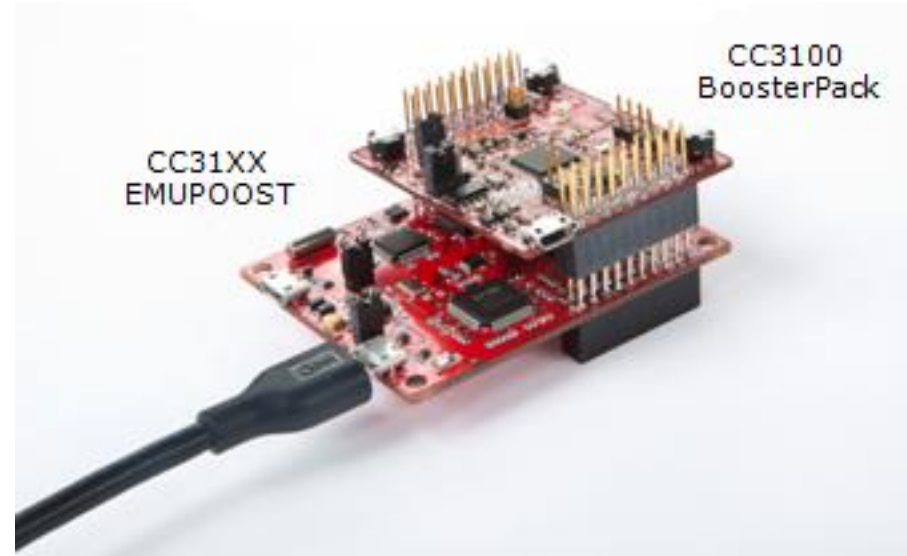
- IR Transceiver: IR LED (transmitter) and TSOP1738 (receiver) will be used for detection.
- They will be interfaced with MSP430 via digital I/O. Timer module will be used for IR LED to drive on 38 kHz
- Relay
- LCD Display



Flag	IR_sensor_a	IR_sensor_b
no person has entered or left	0	0
person has entered through a but has not left through b yet	1	0
person has entered through b but has not left through a yet	0	1

# Wi-Fi Booster CC3100&CC3100 Emulator

- Wi-Fi Network Processor Subsystem
- Power Management Subsystem
- ARM MCU
- Wi-Fi Driver & Multiple Internet Protocols
- 8 simultaneous TCP or UDP Socket
- Crypto Engine with 256-bit AES
- Smart Config
- Tx Power 18dbm@1DSSS 14.5dbm@54OFDM
- Rx Sensitivity: -95.7dBm@1DSSS, -74dBm@54OFDM





# Wi-Fi module (continued)

- 9-Application Throughput
  - UDP 16Mbps
  - TCP 12Mbps
- 10. Host Interface
  - 8bit, 16bit 32 mCUs over SPI & UART
  - low external host driver footprint i.e. less than 7kb of code memory & 700B of RAM mem. required for TCP Client Application

## CC3100 Emulator

- ▶ Tool to provide firmware updates to CC3100 Booster pack

# Softwares required for Wi-Fi Booster Pack

- ▶ Service Pack SDK (Software Development Kit)
- ▶ Uniflash
- ▶ Tera Terminal



# Temperature Monitoring and Controlling

- MSP430F5529 has an inbuilt Negative Temperature Co-efficient (NTC) temperature sensor to record the temperature of surrounding.
- Inbuilt temperature sensor has a temperature co-efficient of 0.7% per deg.C.
- Operating temperature range for MSP430F5529 is (-40) to 85 deg.C



# Responsibility Distribution

- Amit Singh & Tejas Sontakke : Wi-Fi Interface with MSP430 and Debugging.
- Gaurav Shenoy : Coding and Debugging
- Raj Shah : Sensor Interfacing and application management.

# Progress Report

	Mid October	End Of October	Mid November
Amit Singh	Interfacing MSP430 with Wi-Fi module	Wi-Fi interfacing with MSP430 and debugging.	
Gaurav Shenoy	Msp430 led module test.	Programing the MSP430.	<b>FINAL TESTING</b>
Raj Shah	Sensor availability and procurement	Temperature Controlling via inbuilt sensor , Begin interfacing of IR sensor and LCD display.	<b>AND</b>
Tejas Sontakke	Study of Wi-Fi modules , and procurement	Simple Link Wi-Fi CC3100 Booster Pack study and interface.	<b>DEBUGGING!!</b>

# Progress With Components

- ▶ MSP 430 F5229 Microcontroller (purchased)
- ▶ Wi-Fi TI CC3100 booster pack (ordered, yet to receive)
- ▶ Wi-Fi TI CC3100 Emulation booster pack (ordered, yet to receive)
- ▶ 16x2 LCD Board(To be ordered)
- ▶ IR Led(To be ordered)

# Alternate Plan Of Action

- ▶ GSM Interfacing will be undertaken.
- ▶ Parameters will be remotely controlled via a smartphone.





▶ Any Questions?



▶ Thank You!