DRAW SCHEMATIC AND CONNECTION PROTOTYPE

ASSIGNMENT 10

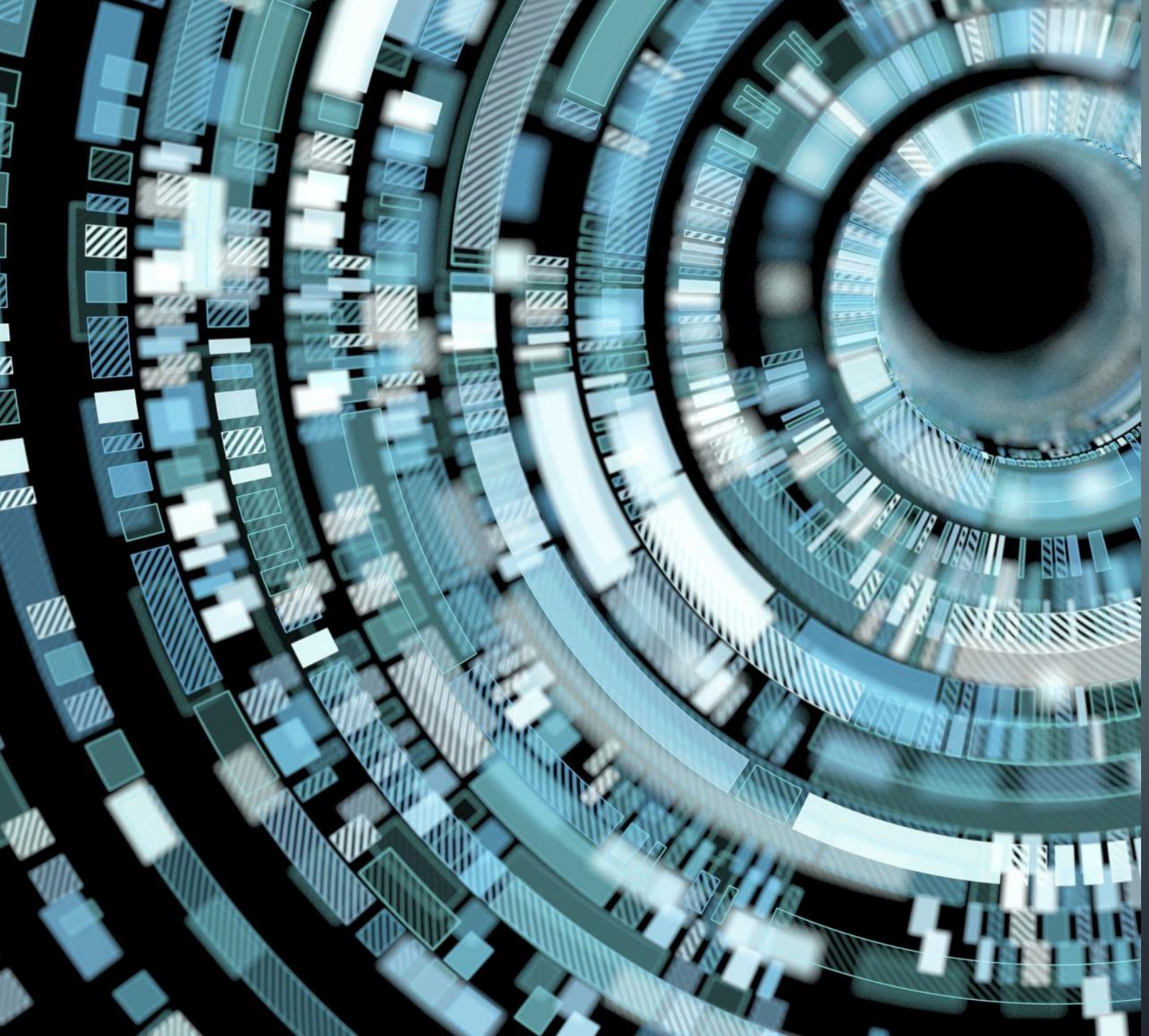
GROUP 8

BIOMETRIC AUTHENTICATOR

PRESENTED BY: DEVANG GAJJAR

STUDENT ID: C0747673

PROFESSOR : MIKE ALESHAMS



CONTENT

- What is EasyEDA
- What is UART
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- Connection of Wifi Module
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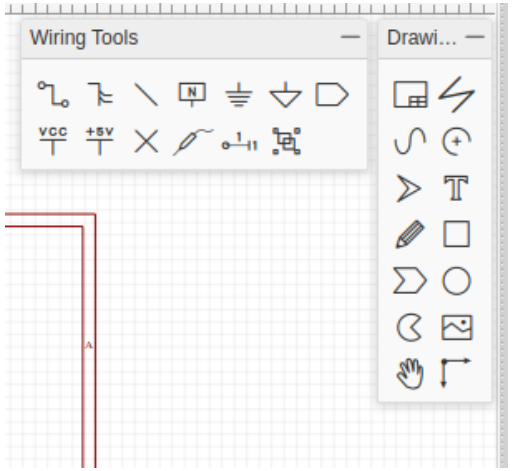
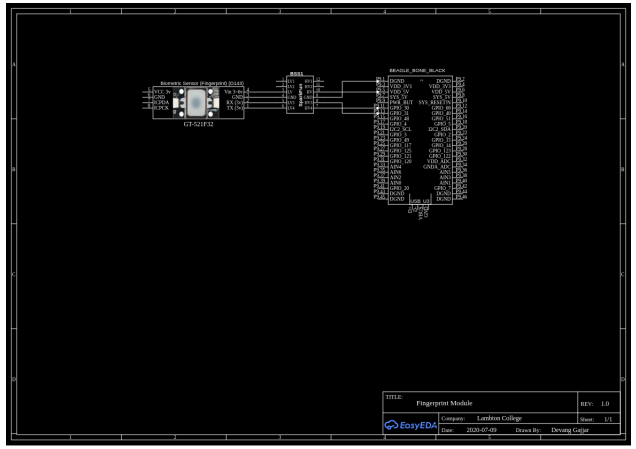
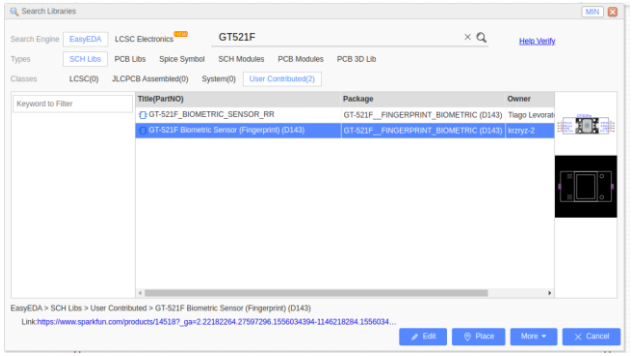
EASYEDA

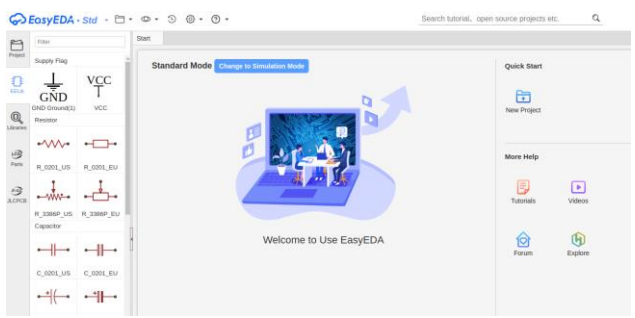
- It is a web-based application which is freely available and of no limitations.
- Also it is as mentioned web-based so active user can access it from any device coneected with the browser.
- IT supports many languages for diverse community of people and their understanding.
- For quick placement of schematic components, EasyEDA has a library of common elements.
- EasyEDA allows users to import schematics and software libraries from other files from KiCad, Eagle and other tools.
- It has more than 500000 libraries with symbols and footprints of components. User can also create there own footprints and components symbols if needed.

PHOTOS OF EASYEDA

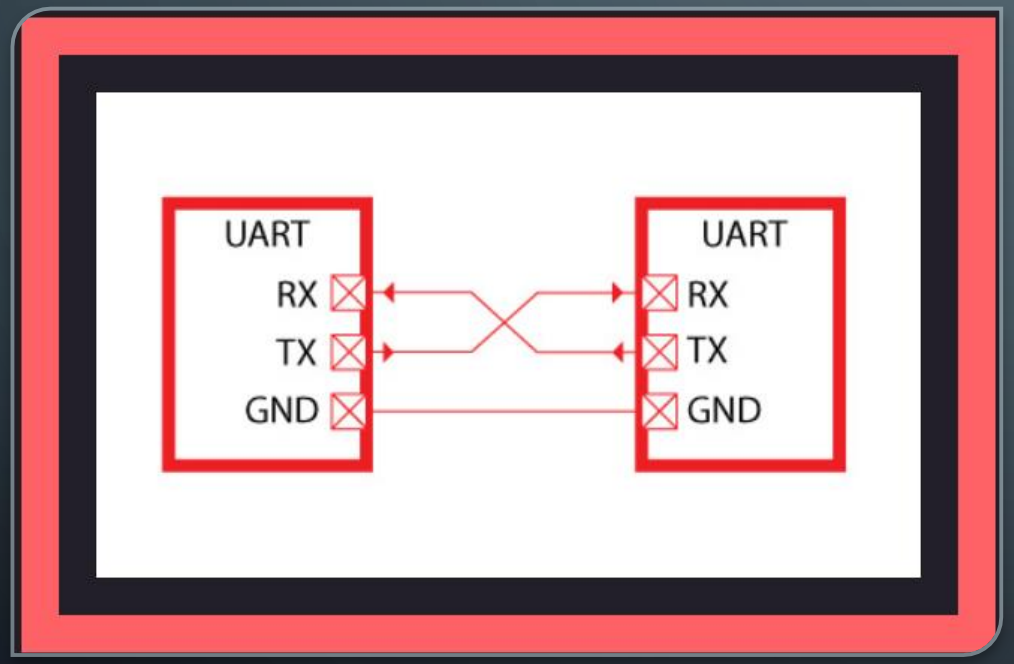








WHAT IS UART?

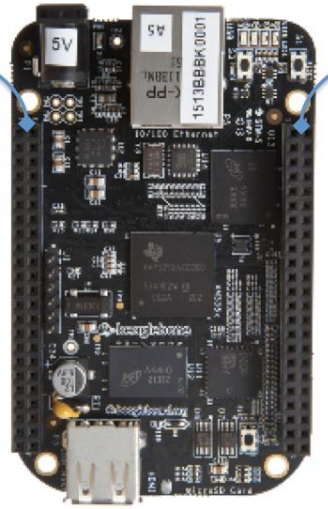


- UART stands for Universal Asynchronous Receiver/Transmitter. It is not a protocol like SPI and I2C, instead it a standalone IC used for transmit/receive serial data bit by bit.
- UART works on basically single-master and single-slave protocol.
- It is of 3 modes:
  1. Full Duplex
  2. Half Duplex
  3. Simplex
- No clock signal is required.

Cape Expansion Headers

P9

DGND	1	2	DGND
VDD_3V3	3	4	VDD_3V3
VDD_5V	5	6	VDD_5V
SYS_5V	7	8	SYS_5V
PWR_BUT	9	10	SYS_RESETn
UART4_RXD	11	12	GPIO_60
UART4_TXD	13	14	EHRPWM1A
GPIO_48	15	16	EHRPWM1B
SPI0_CS0	17	18	SPI0_D1
I2C2_SCL	19	20	I2C2_SDA
SPI0_D0	21	22	SPI0_SCLK
GPIO_49	23	24	UART1_TXD
GPIO_117	25	26	UART1_RXD
GPIO_115	27	28	SPI1_CS0
SPI1_D0	29	30	GPIO_112
SPI1_SCLK	31	32	VDD_ADC
AIN4	33	34	GNDA_ADC
AIN6	35	36	AIN5
AIN2	37	38	AIN3
AIN0	39	40	AIN1
GPIO_20	41	42	ECAPPWM0
DGND	43	44	DGND
DGND	45	46	DGND



LEGEND
POWER/GROUND/RESET
AVAILABLE DIGITAL
AVAILABLE PWM
SHARED I2C BUS
RECONFIGURABLE DIGITAL
ANALOG INPUTS (1.8V)

P8

DGND	1	2	DGND
MMC1_DAT6	3	4	MMC1_DAT7
MMC1_DAT2	5	6	MMC1_DAT3
GPIO_66	7	8	GPIO_67
GPIO_69	9	10	GPIO_68
GPIO_45	11	12	GPIO_44
EHRPWM2B	13	14	GPIO_26
GPIO_47	15	16	GPIO_46
GPIO_27	17	18	GPIO_65
EHRPWM2A	19	20	MMC1_CMD
MMC1_CLK	21	22	MMC1_DAT5
MMC1_DAT4	23	24	MMC1_DAT1
MMC1_DAT0	25	26	GPIO_61
LCD_VSYNC	27	28	LCD_PCLK
LCD_HSYNC	29	30	LCD_AC_BIAS
LCD_DATA14	31	32	LCD_DATA15
LCD_DATA13	33	34	LCD_DATA11
LCD_DATA12	35	36	LCD_DATA10
LCD_DATA8	37	38	LCD_DATA9
LCD_DATA6	39	40	LCD_DATA7
LCD_DATA4	41	42	LCD_DATA5
LCD_DATA2	43	44	LCD_DATA3
LCD_DATA0	45	46	LCD_DATA1

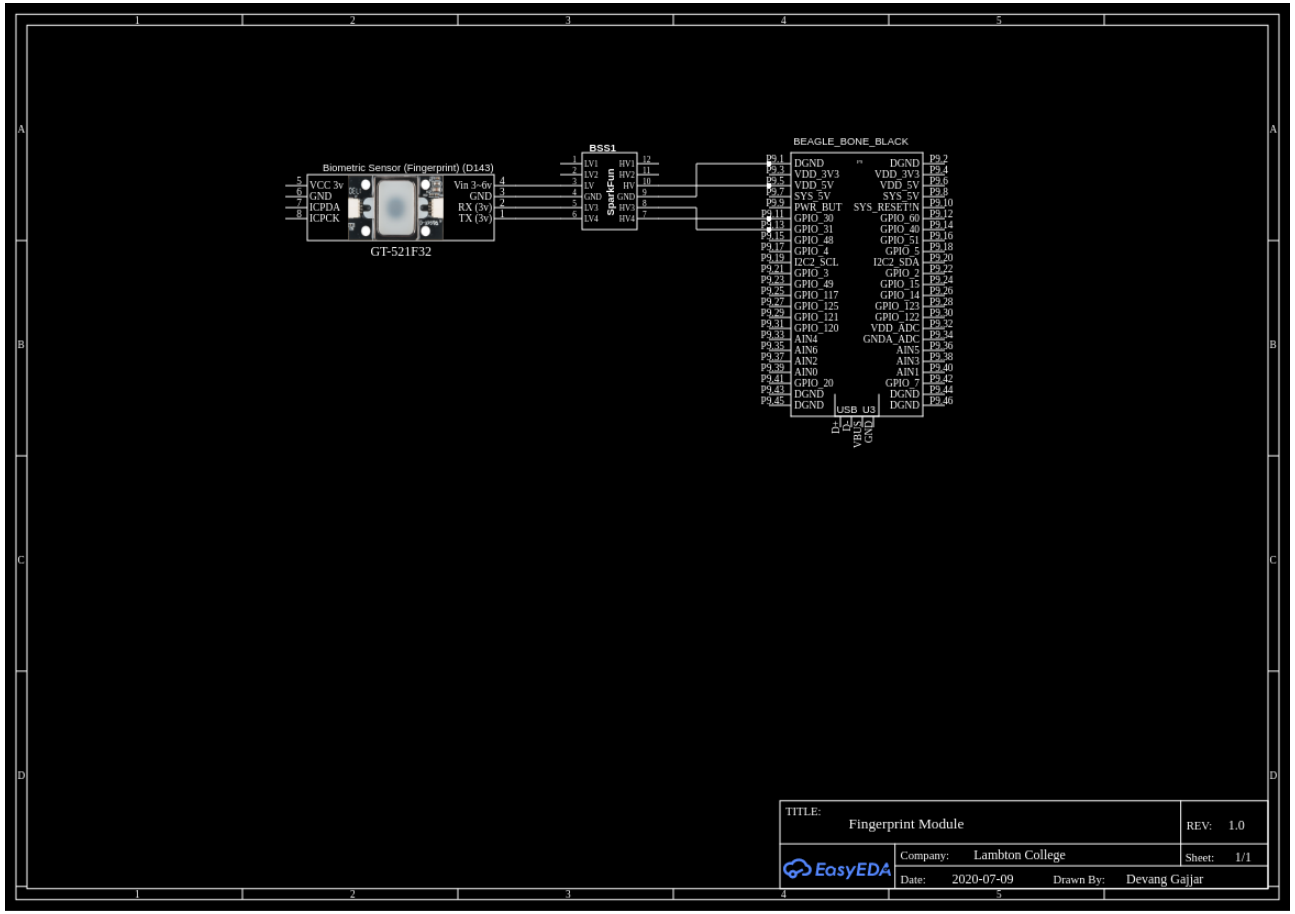
PIN OUTS OF BBB

- Main Pins for the establishing the serial connection with BBB are the UART pins

  .i.e. P9 header pin 11,13,21,22,24,26. And for P8 header 37,38.

- Here I have done all connection in P9 header side only.

INTERFACE OF FPS WITH BBB



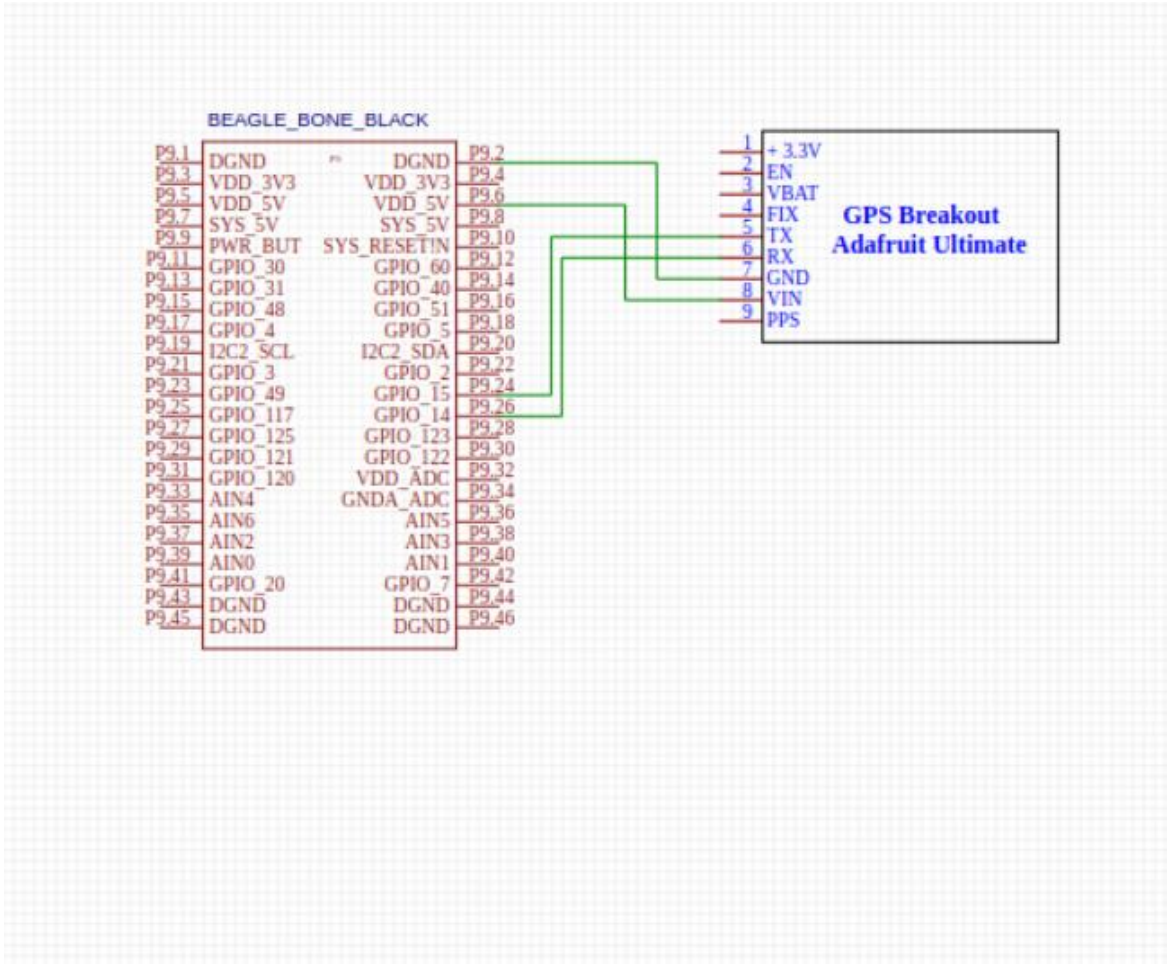
Tx ⟷ Pin 11

Rx ⟷ Pin13

Vin ⟷ Pin 5

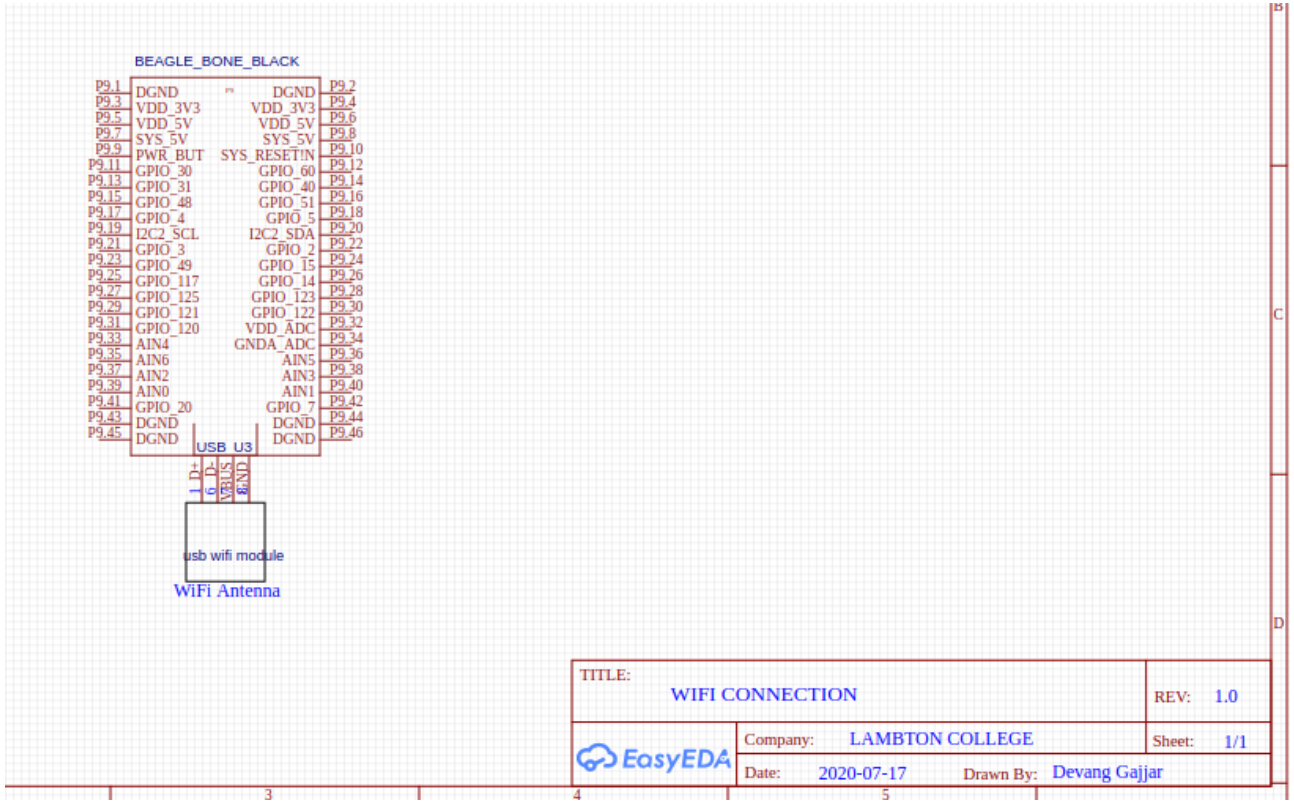
GND ⟷ Pin1

INTERFACE OF GPS WITH BBB



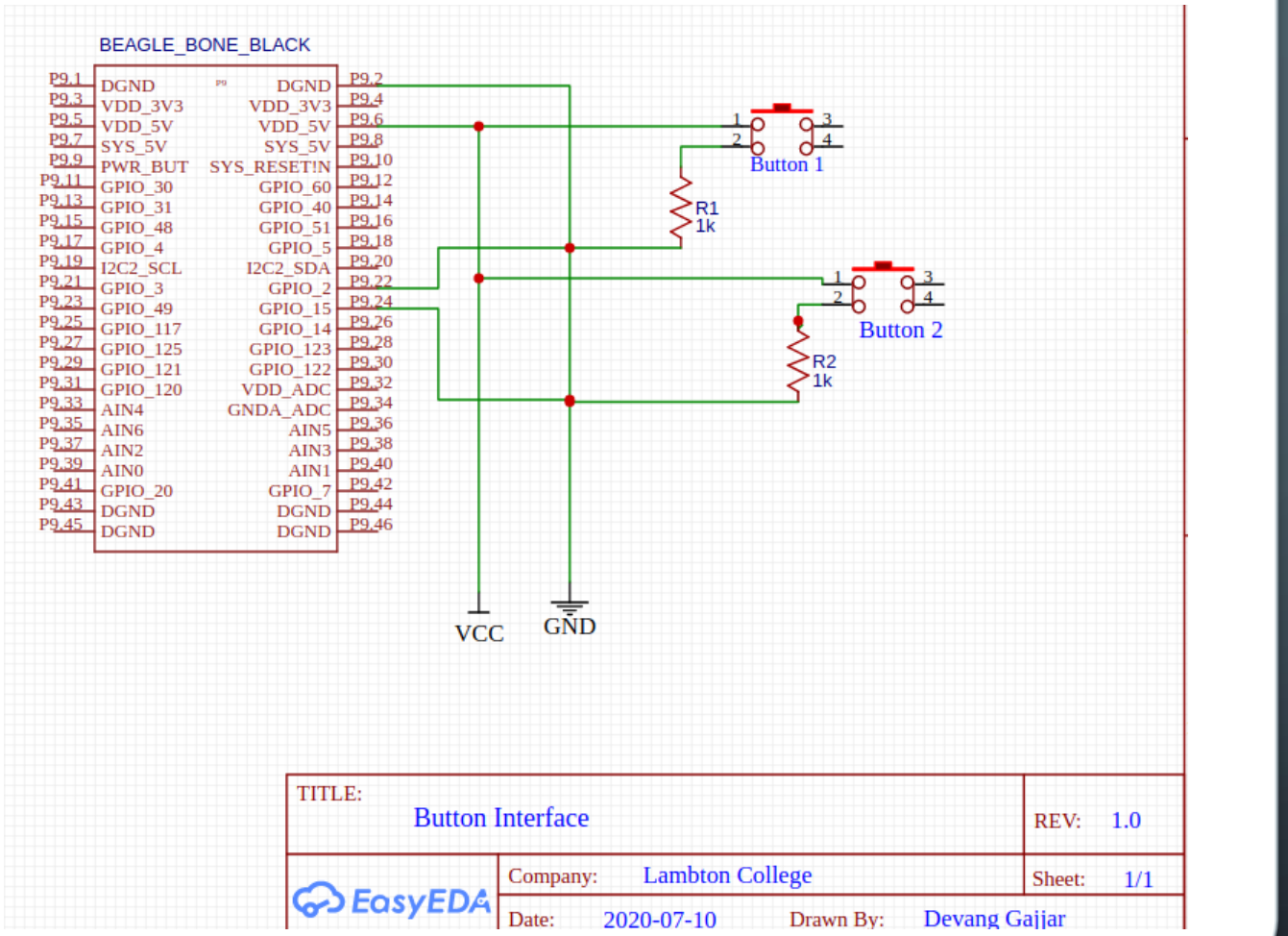
- Rx ⟷ Pin24
- Tx ⟷ Pin26
- Vin ⟷ Pin6
- GND ⟷ Pin2

CONNECTION OF WIFI SHIELD WITH BBB



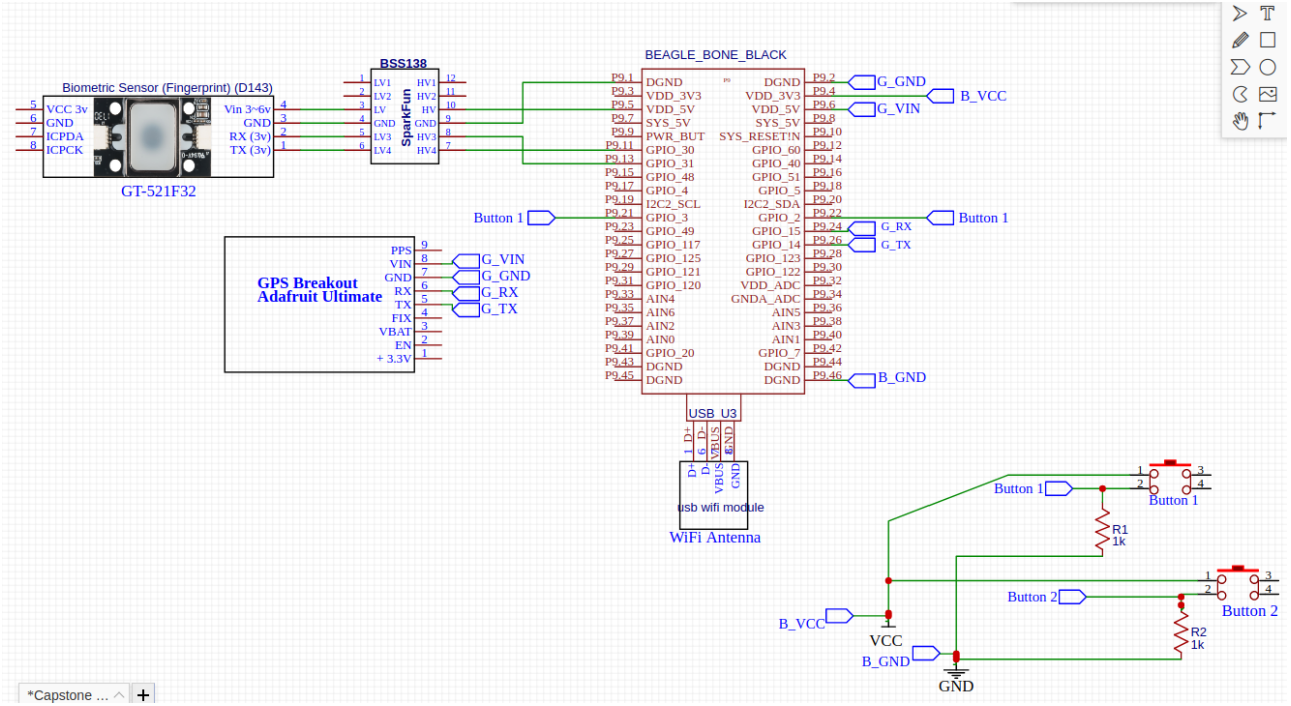
- Here we are using the AC600 USB 2.0 Startech WIFI module for internet.

INTERFACE OF BUTTONS WITH BBB



- For Interfacing of the Buttons we need pull down resistors and makes the button work as a input device.
- GND
- VCC
- Pin 22
- Pin 21

FINAL SCHEMATICS



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Thank You