Use User button from board as Power

User LED2 from board as Power

1. Press button
   1. Power on
      1. Set variable
   2. LED2 comes on
2. Press button
   1. Power off
      1. Set variable
   2. LED2 goes off

Pushbutton LEDs

1. If LED2 == ON
   1. Red Pushbutton LED
      1. 12 Oz cup
      2. 59 seconds
         1. Variable driven
   2. Orange Pushbutton LED
      1. 10 Oz cup
      2. 50 seconds
         1. Variable driven
   3. Yellow Pushbutton LED
      1. 8 Oz cup
      2. 45 seconds
         1. Variable driven
   4. Green Pushbutton LED
      1. 6 Oz cup
      2. 35 seconds
         1. Variable driven
   5. Blue Pushbutton LED
      1. Extra Strength
      2. On/Off
         1. Variable driven
      3. Black – Normally Open
      4. White Switch ground
      5. Orange LED +
      6. Gray LED -
2. If LED2 == OFF
   1. No pushbutton LED’s work

Extra LEDs

1. Blue
   1. Low Water
2. Red
   1. Temperature

Rheostat

1. Water Level

LCD

1. Brewing message
   1. Show if Extra Strength
   2. Show brew size
      1. 12 Oz
      2. 10 Oz
      3. 8 Oz
      4. 6 Oz
2. Water Level
   1. Full
   2. Refill Soon
   3. Please Refill
3. Temperature

Auto-Off

1. Add to breadboard
2. Button – Auto-Off
   1. Starts a timer
      1. if not in use for 1 hour powers down
3. LED – Auto-Off

GPIO Outputs

1. Auto-Off LED – (26)-PA3(ARD. D4) (Auto\_Off\_LED)
2. 6 oz LED – (29) - PA4(Ard. D7) (\_6Oz\_LED)
3. 8 oz LED – (30) – PC1(ARD.A4-ADC)(\_8Oz\_LED)
4. 10 oz LED – (31) – PA6(Ard. D12) (\_10Oz\_LED)
5. 12 oz LED – Ard\_D10 – (Ard. D10) (\_12Oz\_LED)
6. Extra Strength LED – (33) – PC4(Ard. A1) (Extra\_Strength\_LED)
7. LED2 – LED2
8. Low Water LED – (ARD\_D6) (36) – PB1 (Ard. D6) (Low\_Water\_LED)
9. LCD

GPIO Inputs

1. Auto-Off button - (32) – PA7(Ard. D11) (Auto-Off\_BTN)
2. GPIO\_EXTI13-Power button – GPIO\_EXTI13
3. 6 oz button – (87) – PB2(ARD.D8) (\_6Oz\_BTN) (ARD.D8)
4. 8 oz button – (86) – PB9() (\_8Oz\_BTN)()
5. 10 oz button – (85) – PD4(\_10Oz\_BTN)( PMOD-UART2\_RTS/SPI2\_MOSI)(PMOD2)
6. 12 oz button – (84) – PB0(\_12Oz\_BTN) (ARD.D2-INT0\_EXTI14)( ARD.D3-PWM/INT1\_EXTI0)
7. Extra Strength button – (83) – PD2(Extra\_Strength\_BTN)( PMOD-IRQ\_EXTI2)(PMOD7)
8. Water Sensor (Rheostat) – (18) – PC5(waterLevel) (ARD.A0)

Additional:

1. Need a function so that if 1 cup size is brewing, no other cup size can brew
2. Need to design so that if power is off, no LED’s can come on
3. Need to design so that if brew is interrupted due to low water, it will resume when water is brought back to a more full level.

Functions:

1. Low Water condition during brewing pauses brewing
   1. Timer for LED ON for brew sizes stops
   2. Brewing LED for the size currently being brewed begins flashing
   3. Brewing paused message on LCD
   4. When water level returns to normal, brewing resumes where it left off
2. Low Water condition prior to brewing will stop brewing from beginning
3. When 1 size is brewing, no other size can brew
   1. Would this be better as a function or would it be more desirable to do it when the LED is turned on
      1. 12 Oz brew SET
      2. 10 Oz brew RESET
      3. 8 Oz brew RESET
      4. 6 Oz brew RESET

**void** **power\_off**(**int** LED2State) {

BSP\_LED\_Off(LED2\_Pin);

LED2State = 0;

HAL\_Delay(1000);

/\* Extra\_Strength\_LED\_GPIO\_Port(GPIO\_PIN\_RESET);

\_12OzOut\_LED\_GPIO\_Port(GPIO\_PIN\_RESET);

\_10Oz\_LED\_GPIO\_Port(GPIO\_PIN\_RESET);

\_8Oz\_LED\_GPIO\_Port(GPIO\_PIN\_RESET);

\_6Oz\_LED\_GPIO\_Port(GPIO\_PIN\_RESET);

\*/

/\*

\* Use User button from board as Power

User LED2 from board as Power

1. Press button

a. Power on

i. Set variable

b. LED2 comes on

2. Press button

a. Power off

i. Set variable

b. LED2 goes off

\*

\* \*/

//Power the coffee maker up for the morning

powerButton = BSP\_PB\_GetState(BUTTON\_EXTI13\_Pin);

**if** (powerButton == 0) {

BSP\_LED\_On(LED2\_Pin);

LED2State = 1;

HAL\_Delay(250);

}

//Power the coffee maker down

powerButton = BSP\_PB\_GetState(BUTTON\_EXTI13\_Pin);

**if** (powerButton == 0 && LED2State == 1) {

power\_off(LED2State);

}

//Make a Strong Brew cup

extraStrengthButton = BSP\_PB\_GetState(BUTTON\_EXTI13\_Pin);

**if** (extraStrengthButton == 1)

{

BSP\_LED\_On(Extra\_Strength\_LED\_Pin);

extraStrengthLED = 1;

HAL\_Delay(250);

}

//Make a Normal Brew cup

extraStrengthButton = BSP\_PB\_GetState(Extra\_Strength\_BTN\_Pin);

**if** (extraStrengthButton == 1 && extraStrengthLED == 1)

{

BSP\_LED\_Off(Extra\_Strength\_LED\_Pin);

extraStrengthLED = 0;

HAL\_Delay(1000);

}

//Make 12 Ounce cup

XL\_BTN = BSP\_PB\_GetState(\_12Oz\_BTN\_Pin);

**if** (XL\_BTN == 1)

{

BSP\_LED\_On(\_12OzOut\_LED\_Pin);

HAL\_Delay(12000);

BSP\_LED\_Off(\_12OzOut\_LED\_Pin);

}

//Make 10 Ounce cup

L\_BTN = BSP\_PB\_GetState(\_10Oz\_BTN\_Pin);

**if** (L\_BTN == 1)

{

BSP\_LED\_On(\_10Oz\_LED\_Pin);

HAL\_Delay(10000);

BSP\_LED\_Off(\_10Oz\_LED\_Pin);

}

//Make 8 Ounce cup

M\_BTN = BSP\_PB\_GetState(\_8Oz\_BTN\_Pin);

**if** (M\_BTN == 1)

{

BSP\_LED\_On(\_8Oz\_LED\_Pin);

HAL\_Delay(8000);

BSP\_LED\_Off(\_8Oz\_LED\_Pin);

}

//Make 6 Ounce cup

S\_BTN = BSP\_PB\_GetState(\_12Oz\_BTN\_Pin);

**if** (S\_BTN == 1)

{

BSP\_LED\_On(\_6Oz\_LED\_Pin);

HAL\_Delay(6000);

BSP\_LED\_Off(\_6Oz\_LED\_Pin);

}

//Water Level

/\* HAL\_ADC\_Start(&hadc1);

halWaterLevel = HAL\_ADC\_PollForConversion(&hadc1, 100);

adcWaterLevel = HAL\_ADC\_GetValue(&hadc1);

if (adcWaterLevel < 1.5)

{

HAL\_UART\_Transmit(&huart1, (uint8\_t \*)lowWater,1, 0);

BSP\_LED\_Reset (\_12OzOut\_LED\_Pin);

BSP\_LED\_Reset (\_10Oz\_LED\_Pin);

BSP\_LED\_Reset (\_8Oz\_LED\_Pin);

BSP\_LED\_Reset (\_6Oz\_LED\_Pin);

}\*/

**int** powerButton;

**int** LED2State;

**int** powerUpTimer;

**int** extraStrengthButton;

**int** extraStrengthLED;

**int** XL\_BTN;

**int** L\_BTN;

**int** M\_BTN;

**int** S\_BTN;

//char lowWater[15] = "Water Level Low";

// uint32\_t adcWaterLevel;

// HAL\_StatusTypeDef halWaterLevel;

powerButton = 0;

LED2State = 0;

powerUpTimer = 0;

extraStrengthButton = 0;

extraStrengthLED = 0;

XL\_BTN = 0;

L\_BTN = 0;

M\_BTN = 0;

S\_BTN = 0;