Embedded Coffee Maker

Final Project
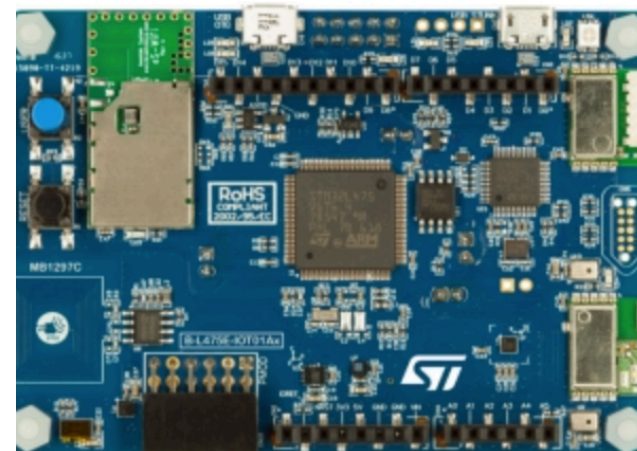
Goals

- Use the Embedded skills you have learned to create an Embedded Controlled Coffee Maker

- Use your STM32 Discovery Kit for IoT Node (or equivalent) as the base hardware controller

- Use STM32CubeIDE to write, debug, run your code

- Submit PDF showing your major steps

  - Include photos of your final board in operation

Coffee Maker I/Os Overview

- GPIO Inputs

- GPIO Outputs

- Analog Inputs

- Console Output

Coffee Maker GPIO Inputs

- GPIO Inputs

  - On/Off (use Blue Button)

  - Strong Brew Button

  - Cup Size Buttons (4)

Coffee Maker GPIO Outputs

- GPIO Outputs

  - Power On/Off LED
    (Use LED2 on IoT Board)

  - Auto Off LED

  - Add Water LED

  - Strong Brew LED

  - Brew Button LEDs (4 total)

Coffee Maker Analog Input

- Analog Inputs

  - Water Level (0-100%) (use A0 on Arduino)

  - Water Temperature

    - Simulate using temp sensor on Discovery

Coffee Maker Console Output

- Use Console output similar to LCD on a Coffee Maker

  - Display "Power On/Off"

  - Display Status Messages

    - Example: Water Level

    - Example: Water Temperature

    - Example: Brewing Started

Three Levels of Completion

- Level 1 - Minimum Requirements

  - Use STM32 Discovery IoT board (or equivalent)

  - Use Console to provide I/O (inputs/outputs)

- Level 2 - Add External Breadboard + Switches + LEDs

  - Use Breadboard switches/LEDs

- Level 3 - Add Water Level Sensor, etc.

  - Innovative Coffee Maker Club!