

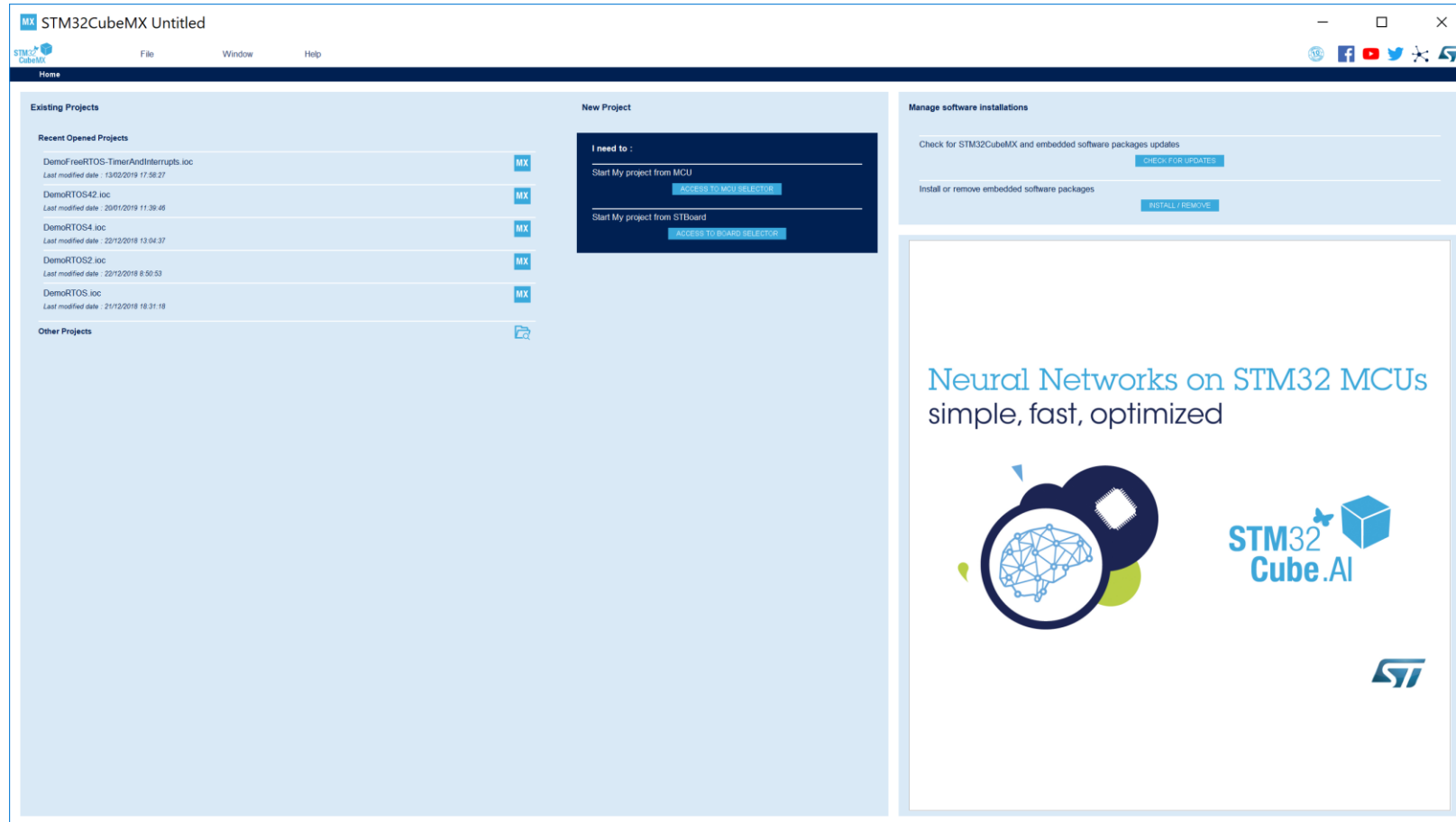
USCD Embedded C Assignment 7

By

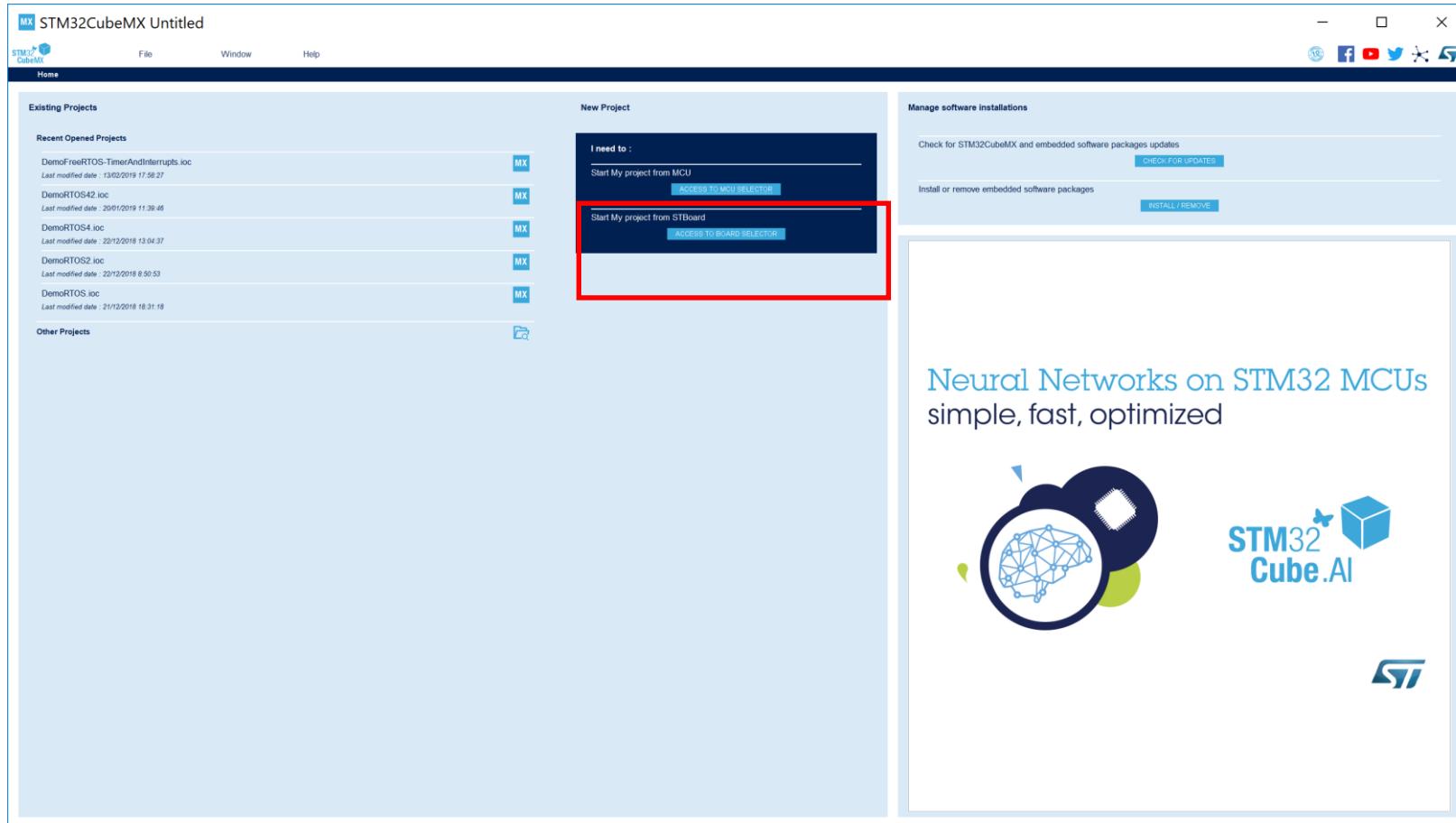
Norman McEntire

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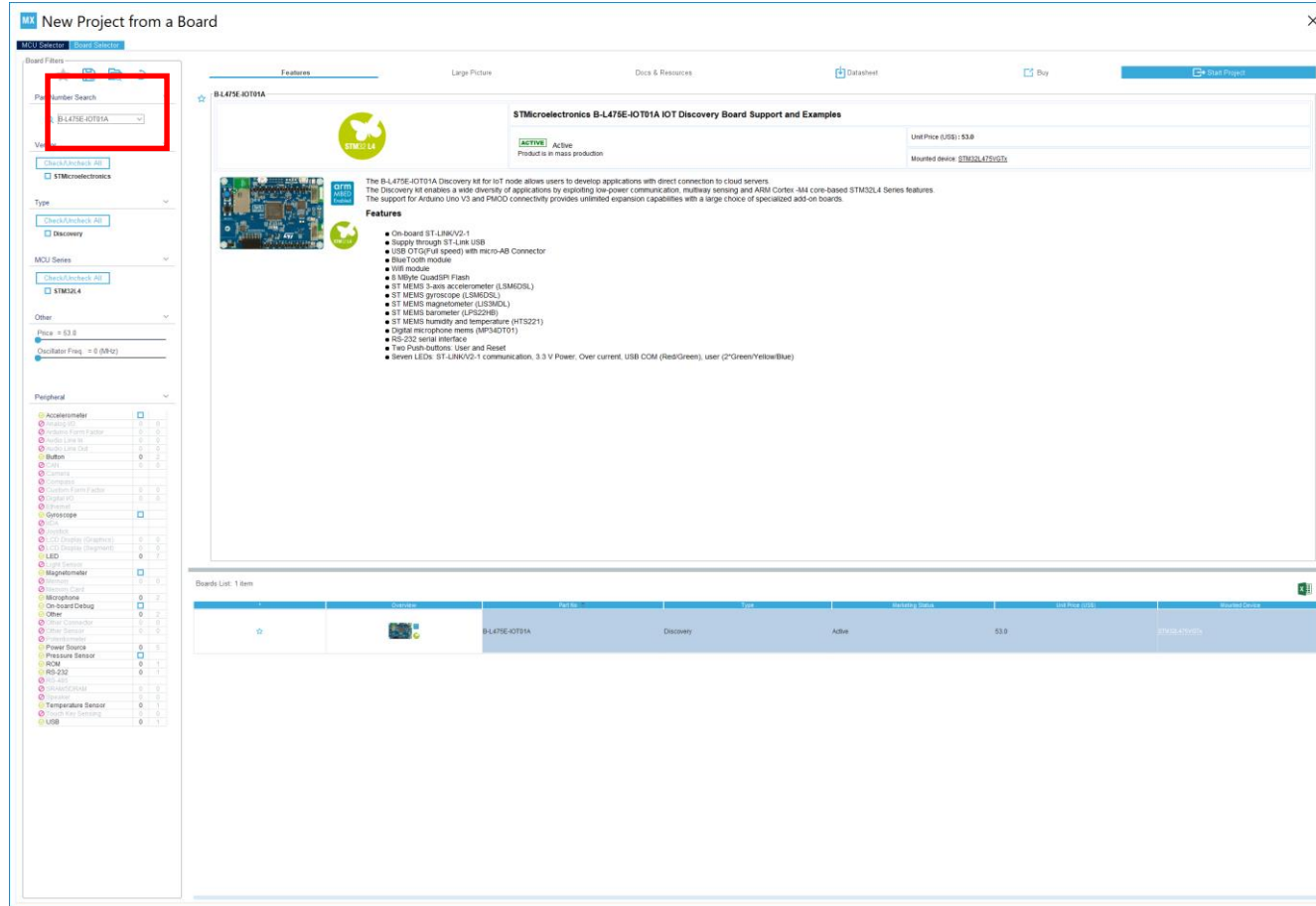
Step 1. Startup STM32CubeMX



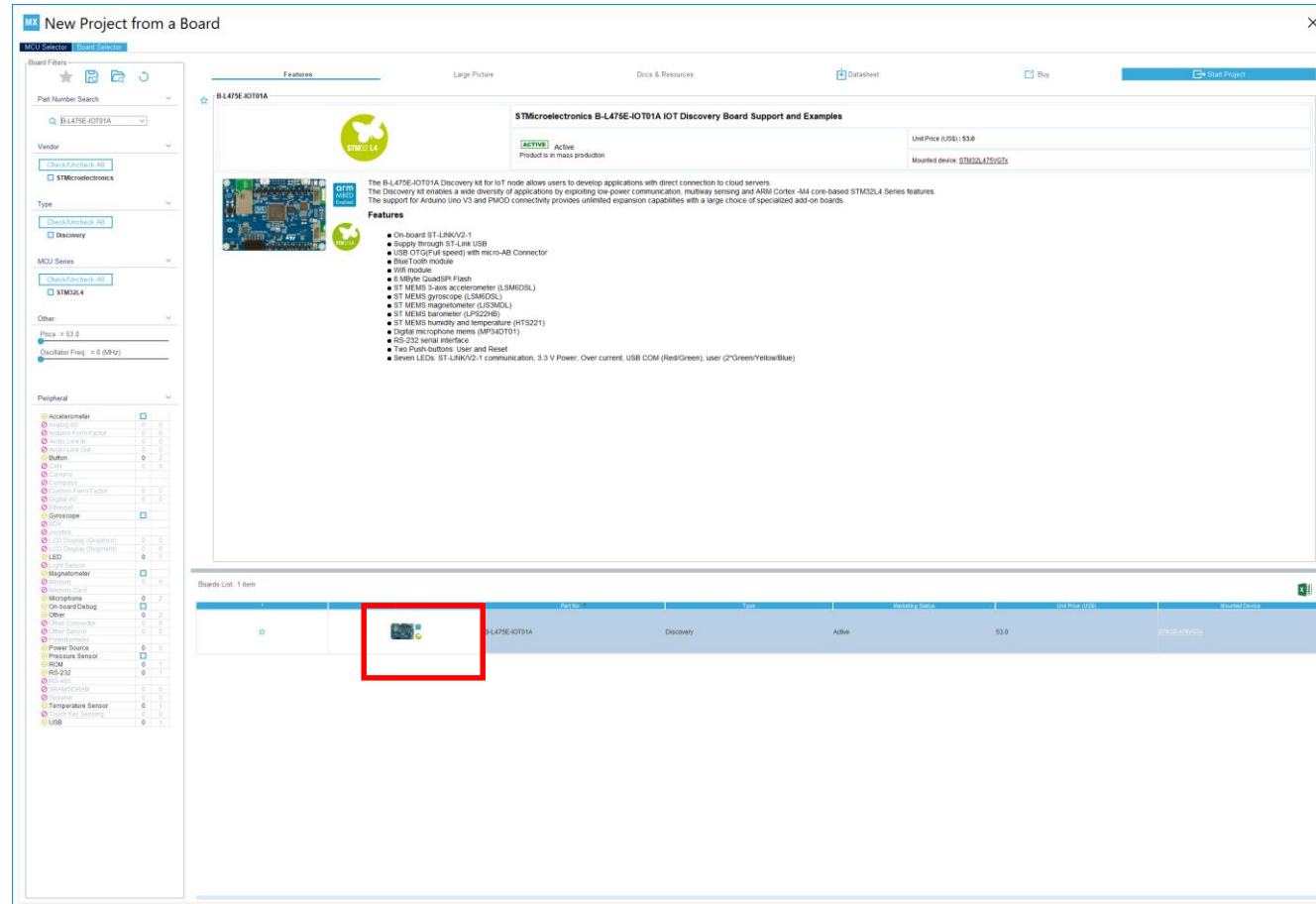
Step 2. Access Board Selector



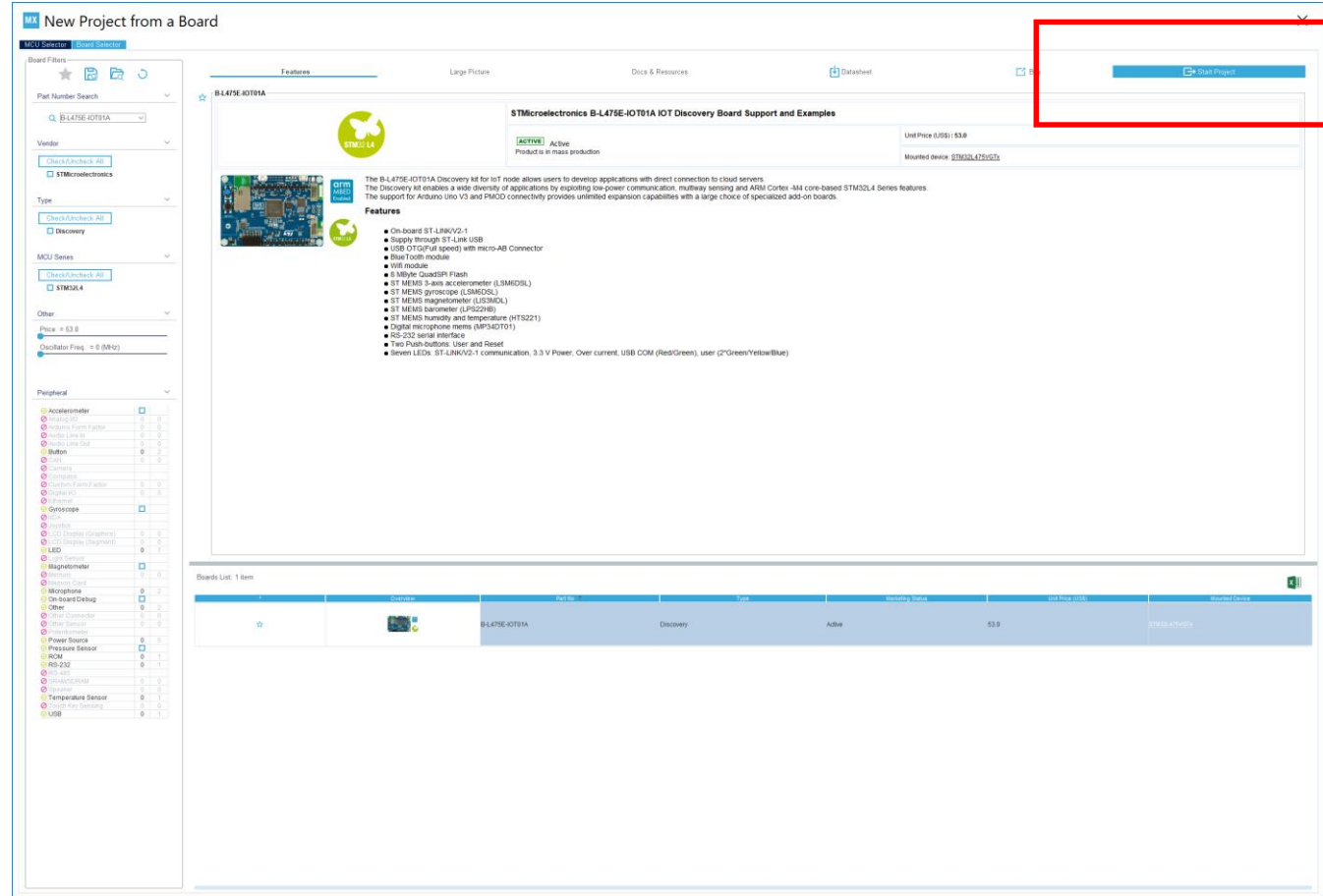
Step 3. Enter “B-L475E-IOT01A” Board



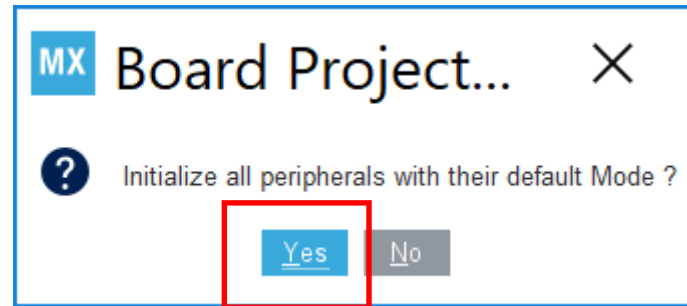
Step 4. Select Board Photo



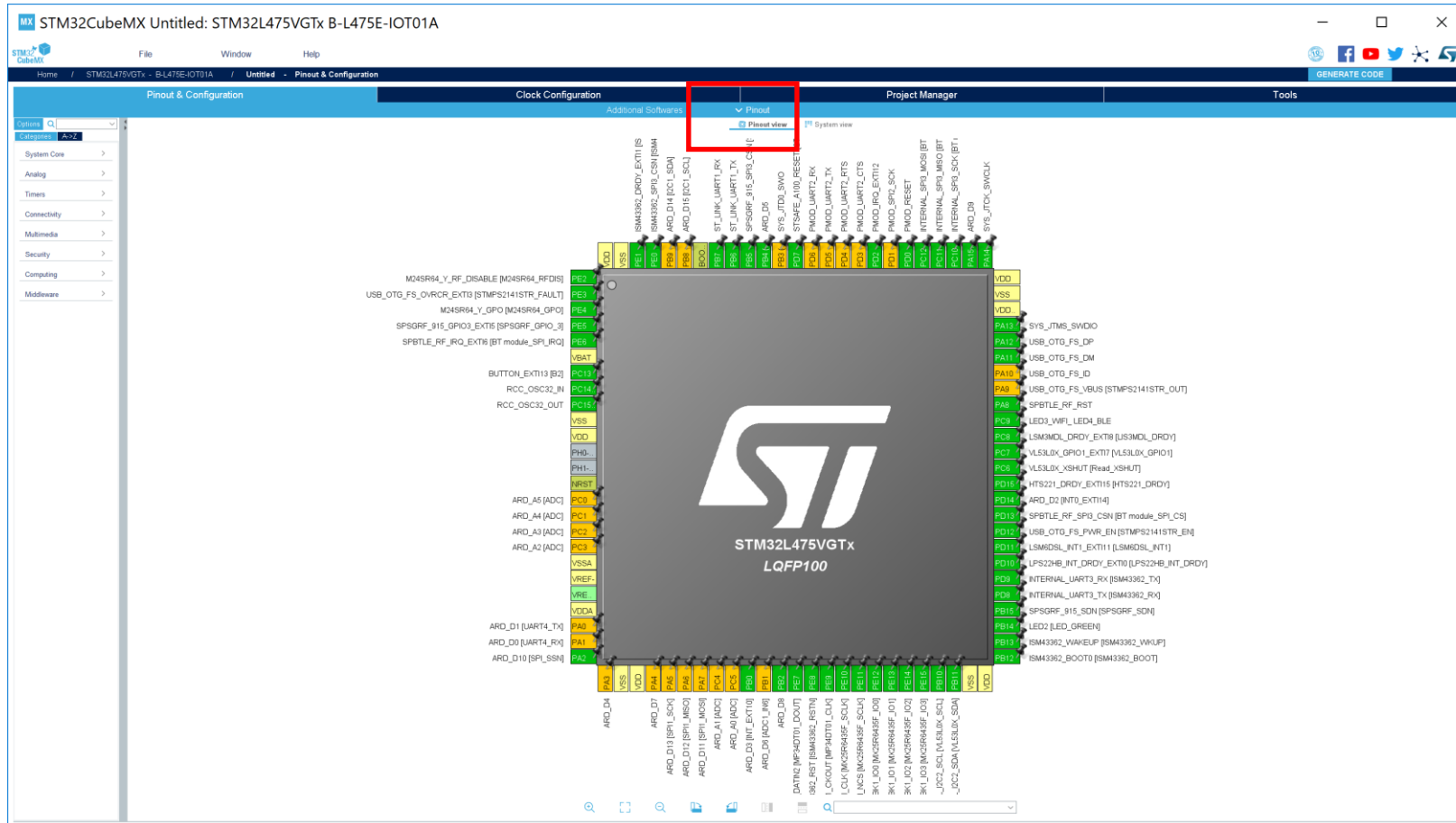
Step 5. Select “Start Project”



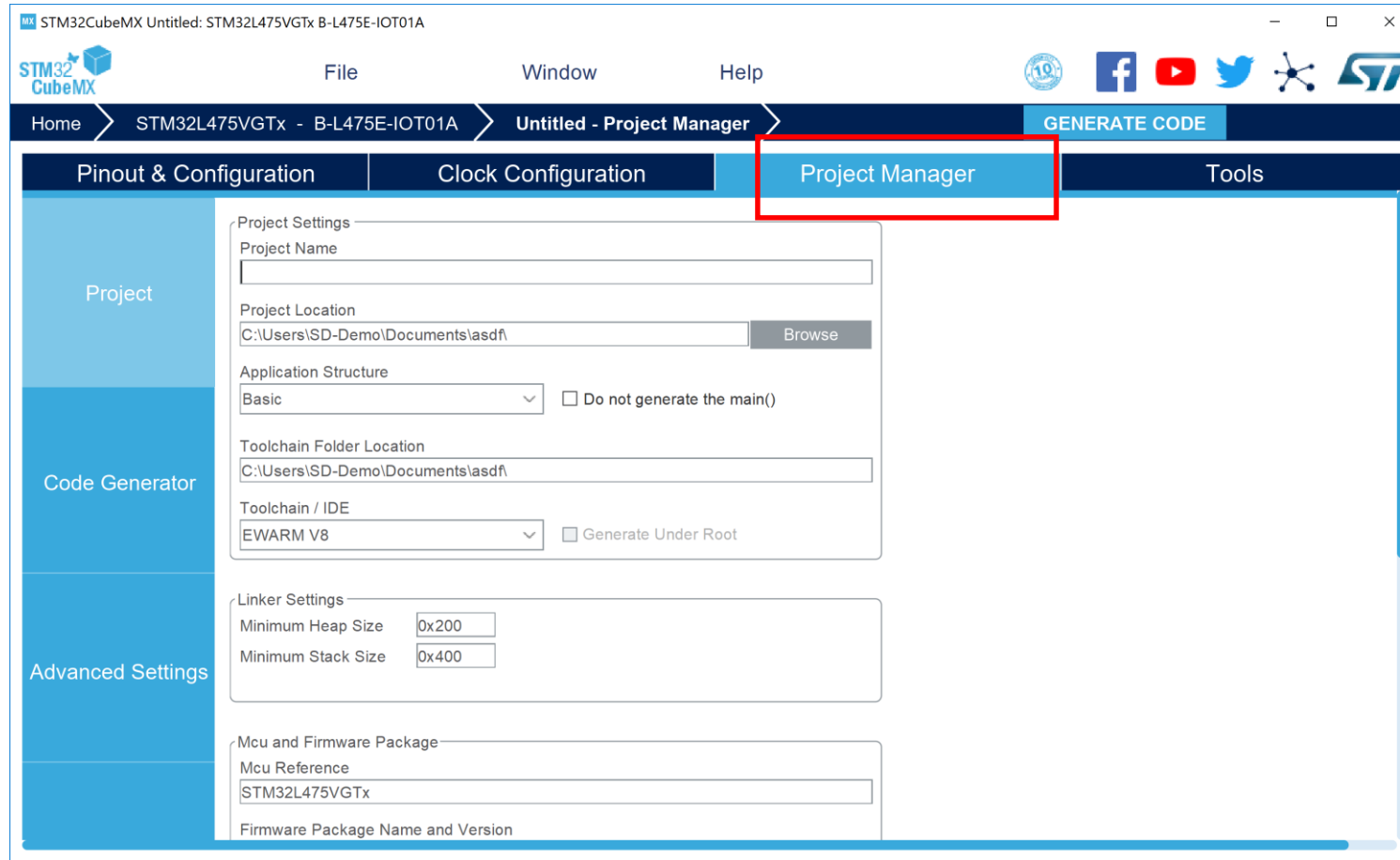
Step 6. Select **YES** (initialize all peripherals with the default mode)



Step 7. Observe Results (Pinout View)



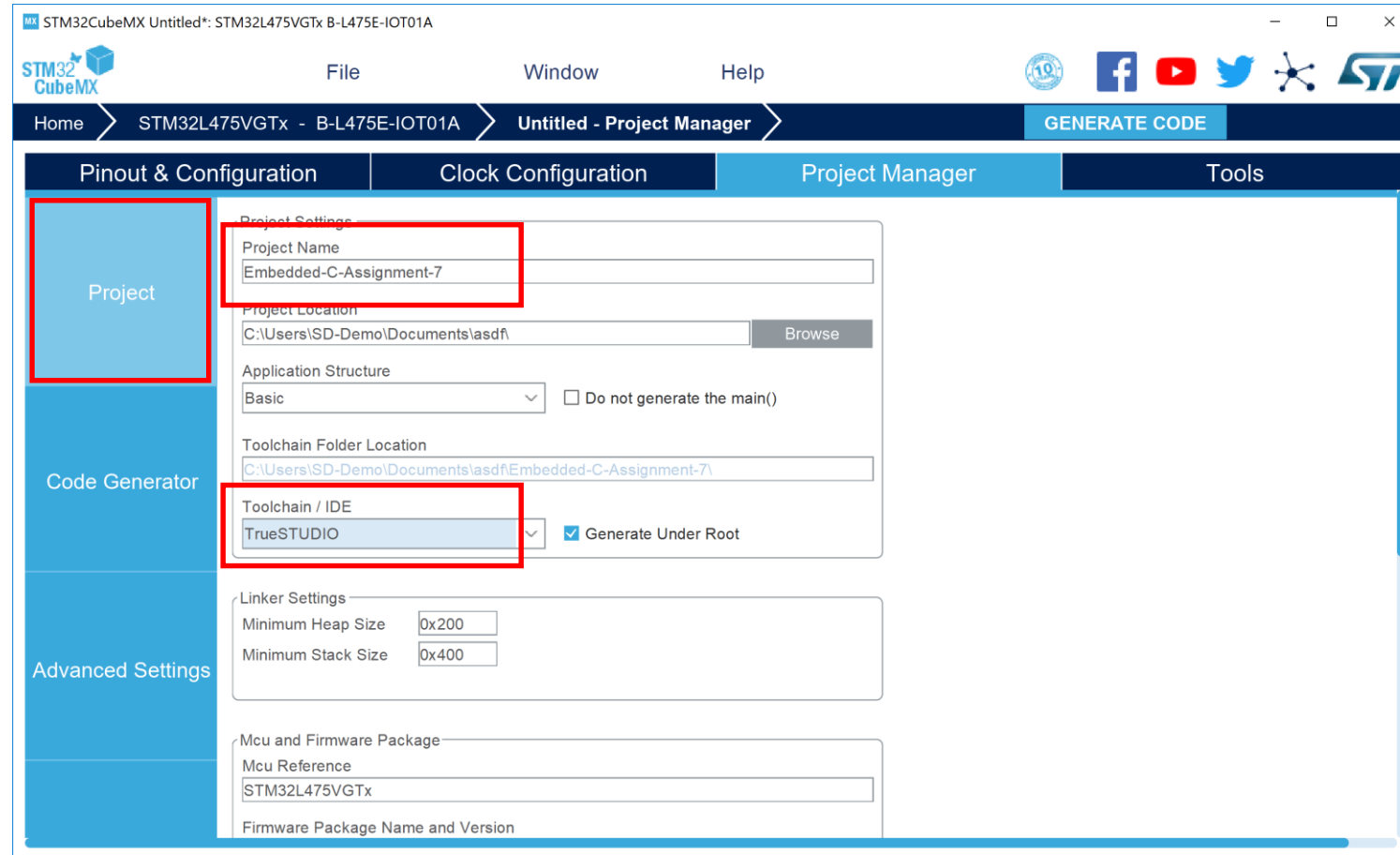
Step 8. Select Project Manager Tab



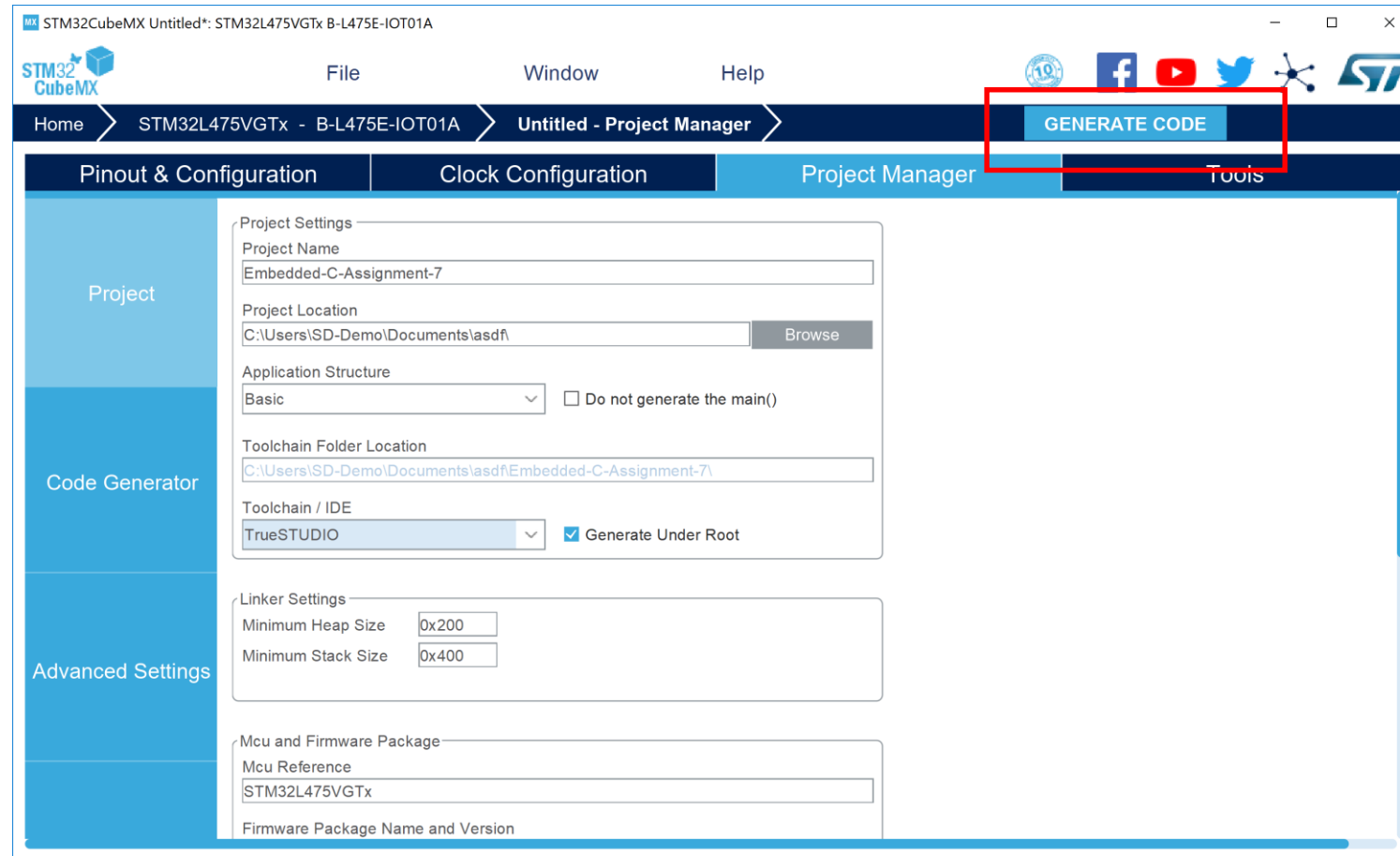
The screenshot shows the STM32CubeMX software interface. The title bar reads "STM32CubeMX Untitled: STM32L475VGTx B-L475E-IOT01A". The menu bar includes "File", "Window", and "Help". The breadcrumb navigation shows "Home" > "STM32L475VGTx - B-L475E-IOT01A" > "Untitled - Project Manager". A "GENERATE CODE" button is visible. The main interface has four tabs: "Pinout & Configuration", "Clock Configuration", "Project Manager" (highlighted with a red box), and "Tools". The "Project Manager" tab is active, displaying a left sidebar with "Project", "Code Generator", and "Advanced Settings". The main content area contains the following settings:

- Project Settings**
 - Project Name: [Empty text field]
 - Project Location: C:\Users\SD-Demo\Documents\asdf [Browse button]
 - Application Structure: Basic [Dropdown menu] ☐ Do not generate the main()
 - Toolchain Folder Location: C:\Users\SD-Demo\Documents\asdf [Text field]
 - Toolchain / IDE: EWARM V8 [Dropdown menu] ☐ Generate Under Root
- Linker Settings**
 - Minimum Heap Size: 0x200 [Text field]
 - Minimum Stack Size: 0x400 [Text field]
- Mcu and Firmware Package**
 - Mcu Reference: STM32L475VGTx [Text field]
 - Firmware Package Name and Version: [Empty text field]

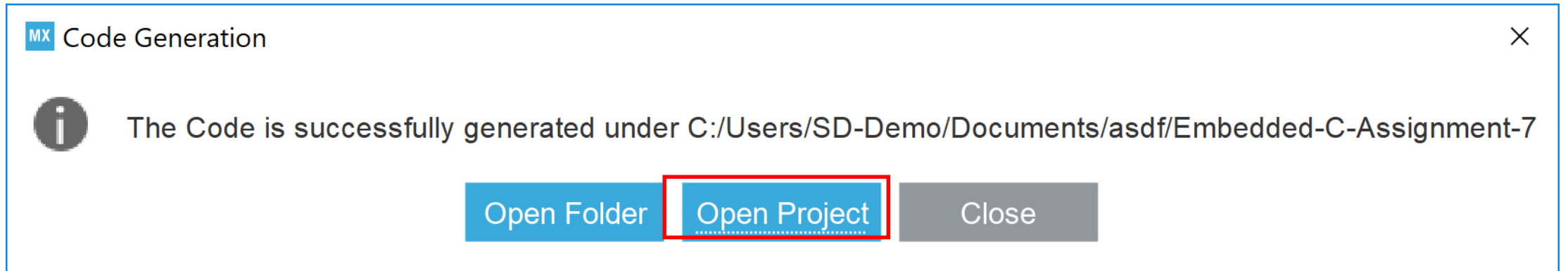
Step 9. Enter “Embedded-C-Assignment-7” and select TrueStudio as IDE



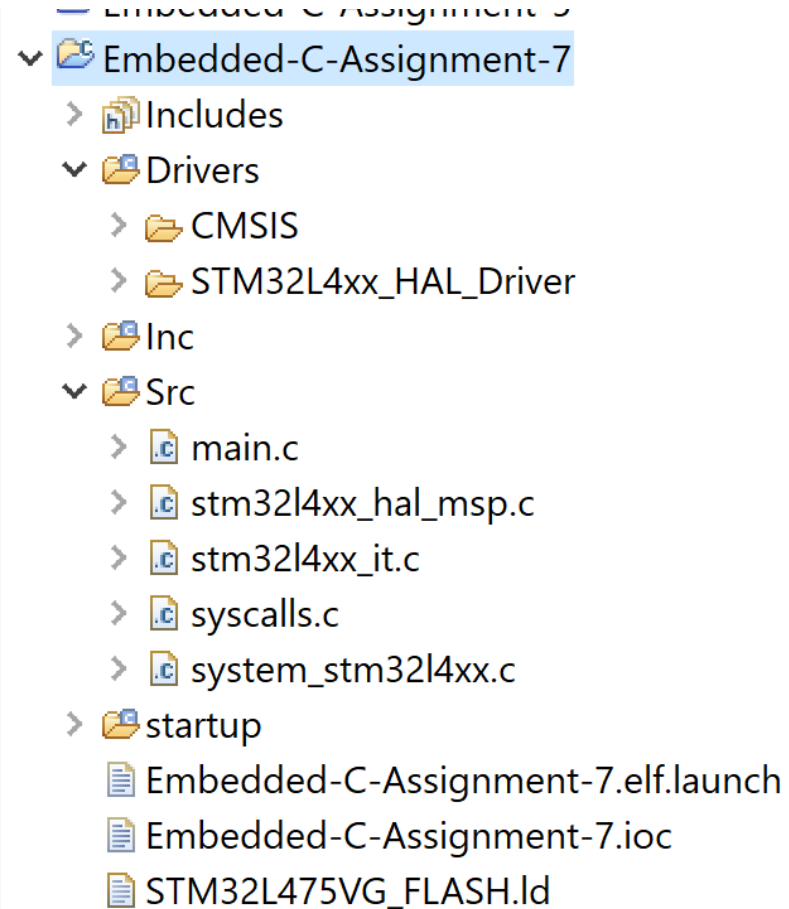
Step 10. Select “Generate Code”



Step 11. Select “Open Project”



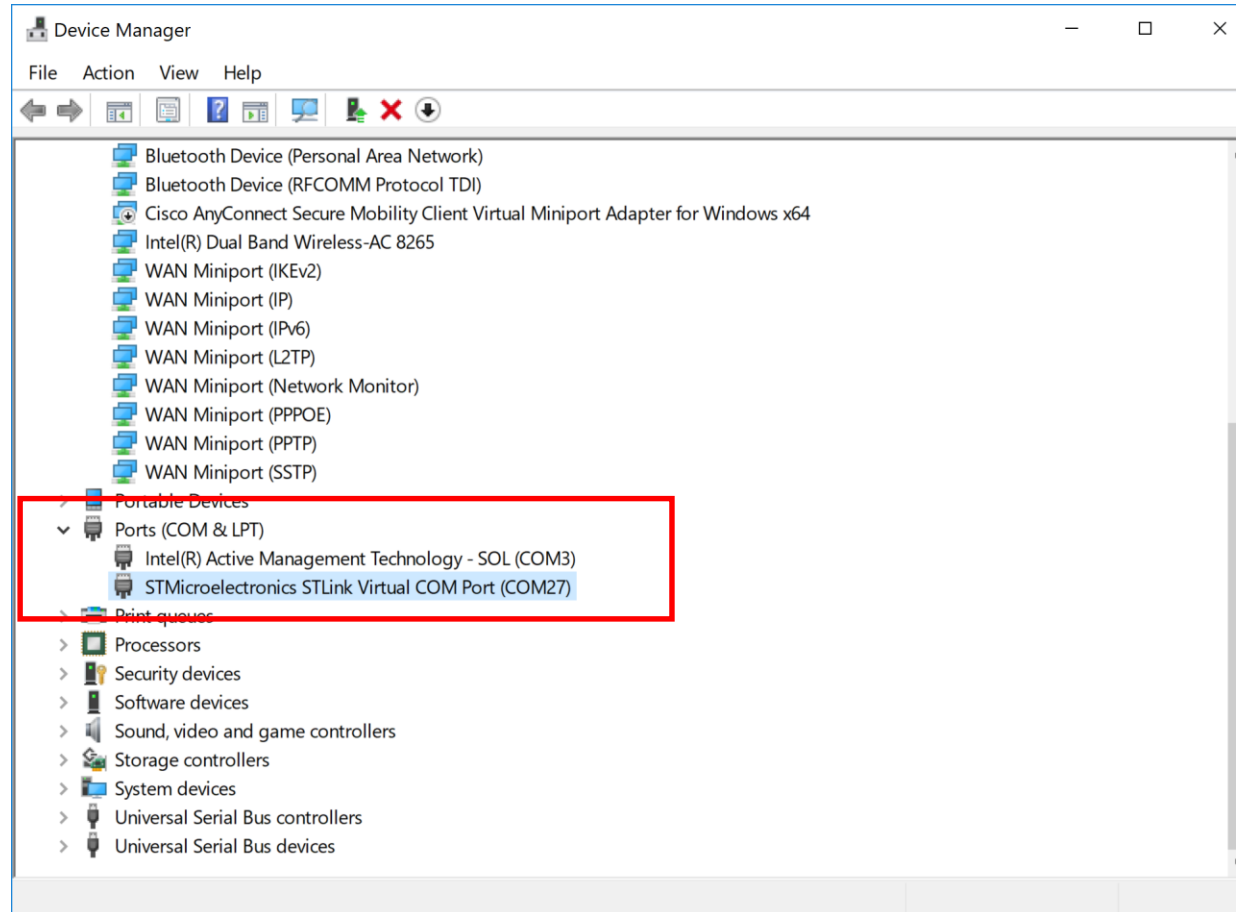
Step 12. Resulting Project



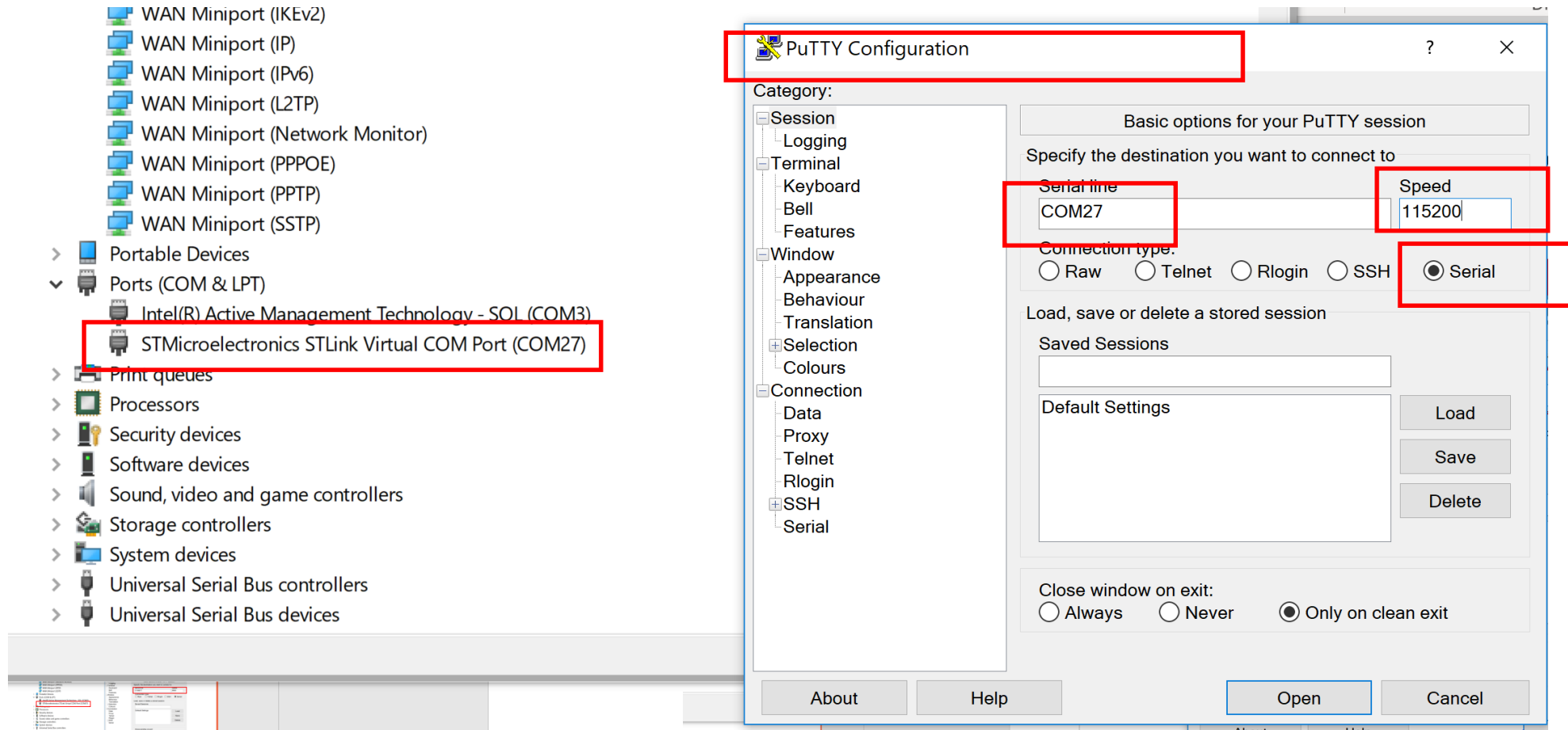
Step 13. In main.c, add code to display a “0123456789\n” once a second on UART1

```
119  /* USER CODE END 2 */
120
121  /* Infinite loop */
122  /* USER CODE BEGIN WHILE */
123  char *msg = "0123456789\n";
124  int index = 0;
125  int len = strlen(msg);
126
127  while (1)
128  {
129      HAL_UART_Transmit(&huart1, (uint8_t *)&msg[index], 1, 0);
130
131      index++;
132      if (index == len) {
133          index = 0;
134      }
135
136      HAL_Delay(1000);
137
138  /* USER CODE END WHILE */
139
140  /* USER CODE BEGIN 3 */
141  }
```

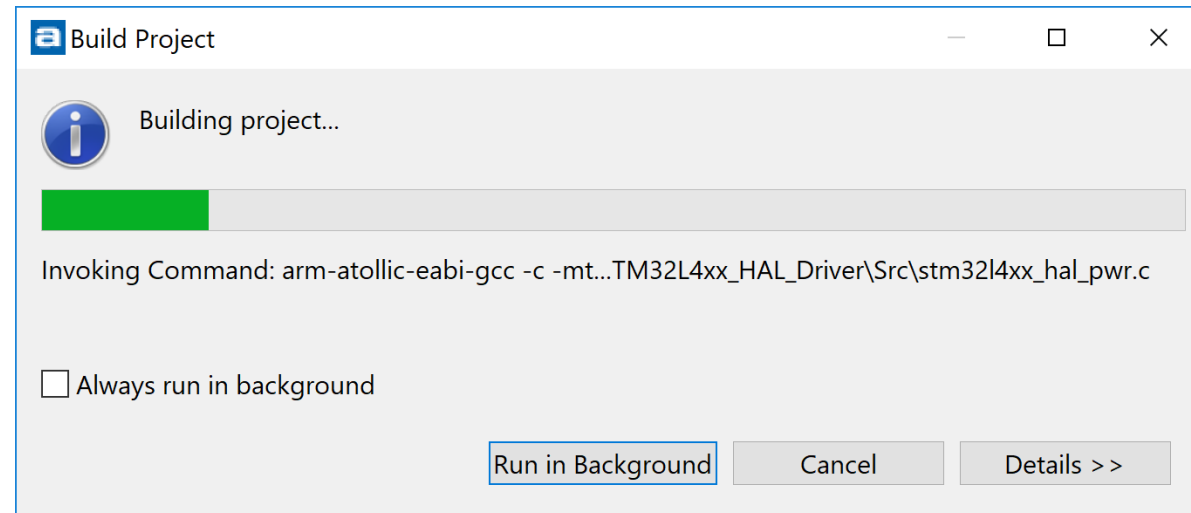
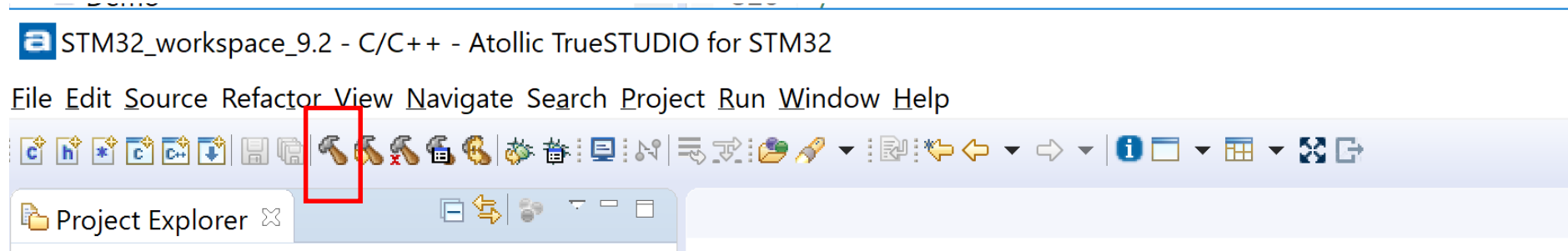
Step 14. Open Device Manager, plug in STM board, Observe COM Port



Step 15. Startup PuTTY on STM COM Port



Step 16. Build Project



Step 17. Results of Build

The screenshot displays two panels from an IDE. The left panel, titled 'CDT Build Console [Embedded-C-Assignment-7]', shows the output of a build process. It includes a table of section sizes, status messages for generating listing and build reports, and the final command executed. The right panel, titled 'Build Analyzer', shows memory details for the generated ELF file.

CDT Build Console [Embedded-C-Assignment-7]

text	data	bss	dec	hex	filename
11452	12	3180	14644	3934	Embedded-C-Assignment-7.elf

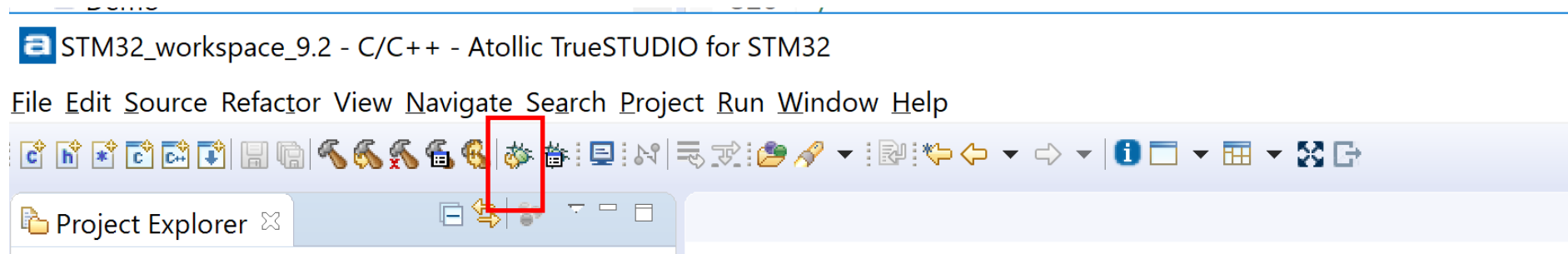
Print size information done
Generate listing file
Output sent to: Embedded-C-Assignment-7.list
Generate listing file done
Generate build reports done
arm-atollic-eabi-objcopy.exe -O ihex Embedded-C-Assignment-7.elf Embedded-C-Assignment-7.hex
15:42:47 Build Finished (took 16s.382ms)

Build Analyzer

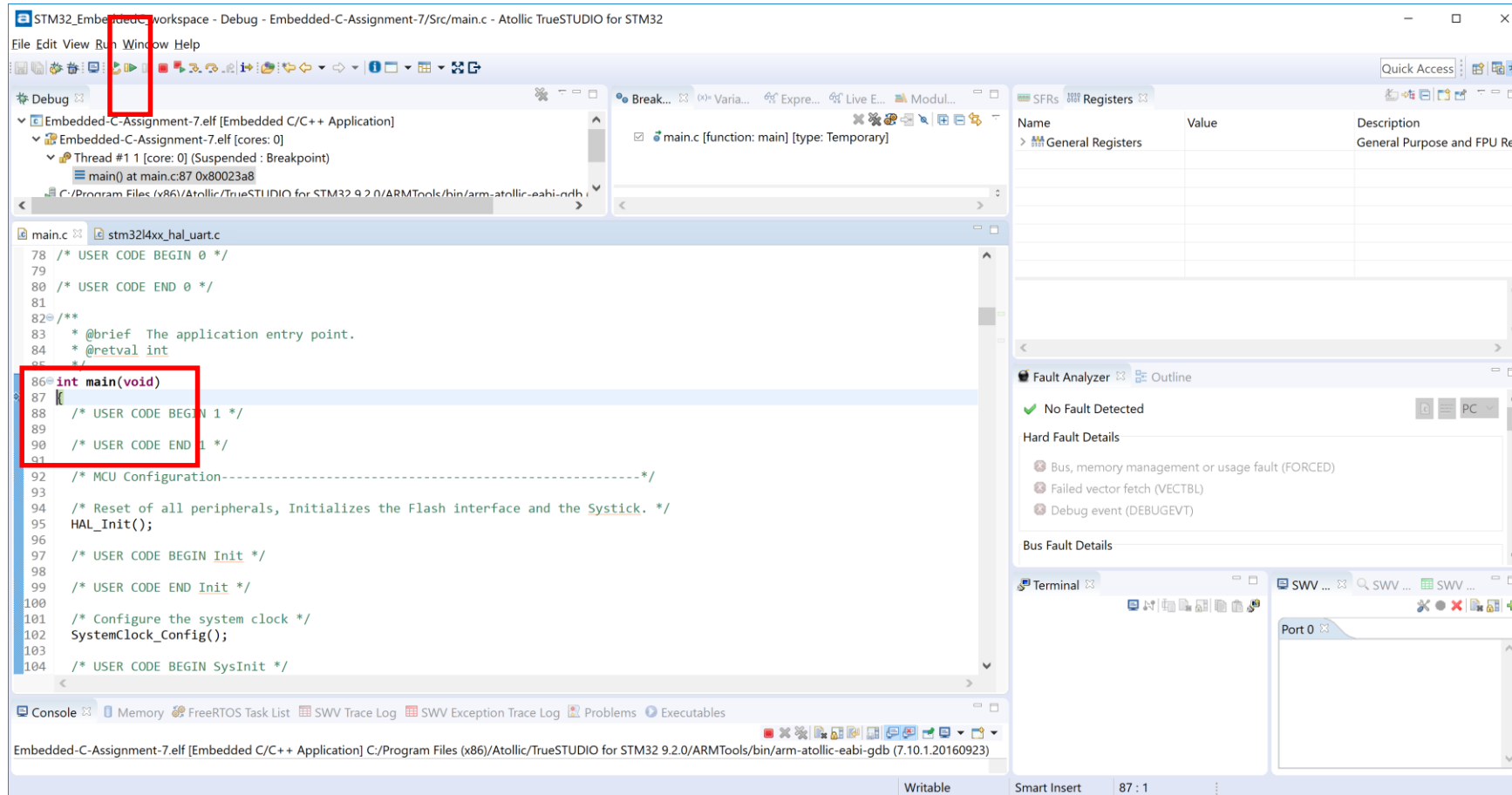
Embedded-C-Assignment-7.elf - /Embedded-C-Assignment-7/Debug - 5/4/19 3:42 PM

Region	Start address	End address	Size	Free	Used
RAM	0x20000000	0x20018000	96 KB	92.89 KB	3.11 KB
RAM2	0x10000000	0x10008000	32 KB	32 KB	0 B
FLASH	0x08000000	0x08100000	1024 KB	1012.8 KB	11.2 KB

Step 18. Run in Debug



Step 19. Hit Breakpoint, then click Resume



Step 20. Observe output on serial port

