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| Team name: | *B7* | | |
| Homework number: | *HW02* | | |
| Due date: | *October 12th* | | |
|  |  |  |  |
| Contribution | NO | Partial | Full |
| 1 *Giampà Simone* |  |  | *x* |
| 2 *Massa Giacomo* |  |  | *x* |
| 3 *Raduzzi Lucafrancesco* |  |  | *x* |
| 4 *Micelli Johanna* |  |  | *x* |
| 5 *Galimberti Claudio* |  |  | *x* |
| Notes: | | | |

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| Project name | HW03: microcontroller prints strings using USART interface | | |
| Not done | Partially done  (major problems) | Partially done  (minor problems) | Successfully completed |
|  |  |  | *x* |
| First of all, we selected USART2 in the Connectivity section and we added in the DMA settings the USART2\_TX in order to allow the DMA transmission. Moreover, we enabled the USART2 global interrupt in the NVIC section. Then, since the Baud rate for USART2 was already at 115200, we simply configured the same BR in the Putty interface. We manually called the MX\_DMA\_Init() to solve the bug in UART DMA mode initialization.  We created an array of strings containing our names and year of birth and using a for cycle in the while loop of the code we transmitted each string using the function HAL\_UART\_Transmit\_DMA().  We read the printed strings on the Putty terminal emulator. | | | |
| Professor comments: | | | |

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| Project name | HW03: writing in the LCD the names of group members | | |
| Not done | Partially done  (major problems) | Partially done  (minor problems) | Successfully completed |
|  |  |  | *x* |
| At first, we enabled the pins PA4, PB1, PB2, PB12, PB13, PB14, PB15 as GPIO\_Output. Then we included it in the project PMDB16\_LCD.c, PMDB16\_LCD.h files and we defined an array of strings with our names. In the main while loop, we defined a for loop that prints all the names in the array (and two more rows with special characters) on the LCD using the function lcd\_println().  Additional features:   1. We used a timer interrupt instead of the delay function because we learned from a previous project that the delay works as a blocking interrupt and may cause some issues, so it is better not to use it if not necessary. We enabled the TIM2 global interrupt. When the function HAL\_TIM\_PeriodElapsedCallback() is called, it changes a boolean control variable for switching to the next string to be printed. 2. We also implemented custom characters that are printed after the list of our names. It prints two lines containing Japanese characters and a couple of emojis. In order to do that, we changed the source code of the PMDB16\_LCD.c file, specifically the part that saves in memory some predefined custom characters. The custom characters are represented as an array of 8 bytes, each of them corresponding to a row of 5 pixels. Each character is displayed as a 5x8 grid of pixels. | | | |
| Professor comments: | | | |