初始化代码

GPIO 初始化

```
42  void MX_GPIO_Init(void)
43  {
44
45    /* GPIO Ports Clock Enable */
46    __HAL_RCC_GPIOC_CLK_ENABLE();
47    __HAL_RCC_GPIOH_CLK_ENABLE();
48    __HAL_RCC_GPIOA_CLK_ENABLE();
49
50  }
```

USART 初始化

```
31  void MX_USART1_UART_Init(void)
32  {
33
34    /* USER CODE BEGIN USART1_Init 0 */
35
36    /* USER CODE END USART1_Init 0 */
37
38    /* USER CODE BEGIN USART1_Init 1 */
39
40    /* USER CODE END USART1_Init 1 */
41    huart1.Instance = USART1;
42    huart1.Init.BaudRate = 115200;
43    huart1.Init.WordLength = UART_WORDLENGTH_8B;
44    huart1.Init.StopBits = UART_STOPBITS_1;
45    huart1.Init.Parity = UART_PARITY_NONE;
46    huart1.Init.Mode = UART_MODE_TX_RX;
47    huart1.Init.HwFlowCtl = UART_HWCONTROL_NONE;
48    huart1.Init.OverSampling = UART_OVERSAMPLING_16;
49    if (HAL_UART_Init(&huart1) != HAL_OK)
50    {
51      Error_Handler();
52    }
53    /* USER CODE BEGIN USART1_Init 2 */
54
55    /* USER CODE END USART1_Init 2 */
56
57  }
58
```

UART 中断初始化

```
/* Private user code ---------------------------------------------------------*/
/* USER CODE BEGIN 0 */
#define RX_DATA_LEN             18
uint8_t RxData[RX_DATA_LEN];
void HAL_UART_RxCpltCallback(UART_HandleTypeDef *huart)
{
  if(huart->Instance == USART1)
  {
    //HAL_UART_Receive(&huart1, &RxData, 1, 10);
    HAL_UART_Transmit(&huart1, RxData, RX_DATA_LEN, 10);
    HAL_UART_Receive_IT(&huart1, RxData, RX_DATA_LEN);
  }
}
/* USER CODE END 0 */
```

定时器初始化

```
void MX_TIM6_Init(void)
{

  /* USER CODE BEGIN TIM6_Init 0 */

  /* USER CODE END TIM6_Init 0 */

  TIM_MasterConfigTypeDef sMasterConfig = {0};

  /* USER CODE BEGIN TIM6_Init 1 */

  /* USER CODE END TIM6_Init 1 */
  htim6.Instance = TIM6;
  htim6.Init.Prescaler = 8400-1;
  htim6.Init.CounterMode = TIM_COUNTERMODE_UP;
  htim6.Init.Period = 10000-1;
  htim6.Init.AutoReloadPreload = TIM_AUTORELOAD_PRELOAD_DISABLE;
  if (HAL_TIM_Base_Init(&htim6) != HAL_OK)
  {
    Error_Handler();
  }
  sMasterConfig.MasterOutputTrigger = TIM_TRGO_RESET;
  sMasterConfig.MasterSlaveMode = TIM_MASTERSLAVEMODE_DISABLE;
  if (HAL_TIMEx_MasterConfigSynchronization(&htim6, &sMasterConfig) != HAL_OK)
  {
    Error_Handler();
  }
  /* USER CODE BEGIN TIM6_Init 2 */

  /* USER CODE END TIM6_Init 2 */

}
```

主程序初始化

```
72  int main(void)
73  {
74
75    /* USER CODE BEGIN 1 */
76
77    /* USER CODE END 1 */
78
79    /* MCU Configuration--------------------------------------------------------*/
80
81    /* Reset of all peripherals, Initializes the Flash interface and the Systick. */
82    HAL_Init();
83
84    /* USER CODE BEGIN Init */
85
86    /* USER CODE END Init */
87
88    /* Configure the system clock */
89    SystemClock_Config();
90
91    /* USER CODE BEGIN SysInit */
92
93    /* USER CODE END SysInit */
94
95    /* Initialize all configured peripherals */
96    MX_GPIO_Init();
97    MX_TIM6_Init();
98    /* USER CODE BEGIN 2 */
99
100   /* USER CODE END 2 */
101
102   /* Infinite loop */
103   /* USER CODE BEGIN WHILE */
104   // 初始化GPIO口
105   HAL_GPIO_WritePin(GPIOF, GPIO_PIN_12, GPIO_PIN_SET);
106   HAL_GPIO_WritePin(GPIOF, GPIO_PIN_11, GPIO_PIN_SET);
107   HAL_TIM_Base_Start_IT(&htim6);  // 中断方式启动TIM6
108   while (1)
109   {
110     /* USER CODE END WHILE */
111
112     /* USER CODE BEGIN 3 */
113     HAL_GPIO_TogglePin(GPIOF, GPIO_PIN_11); // 翻转绿色指示灯LED
114     HAL_Delay(500);
115   }
116   /* USER CODE END 3 */
117 }
118
```