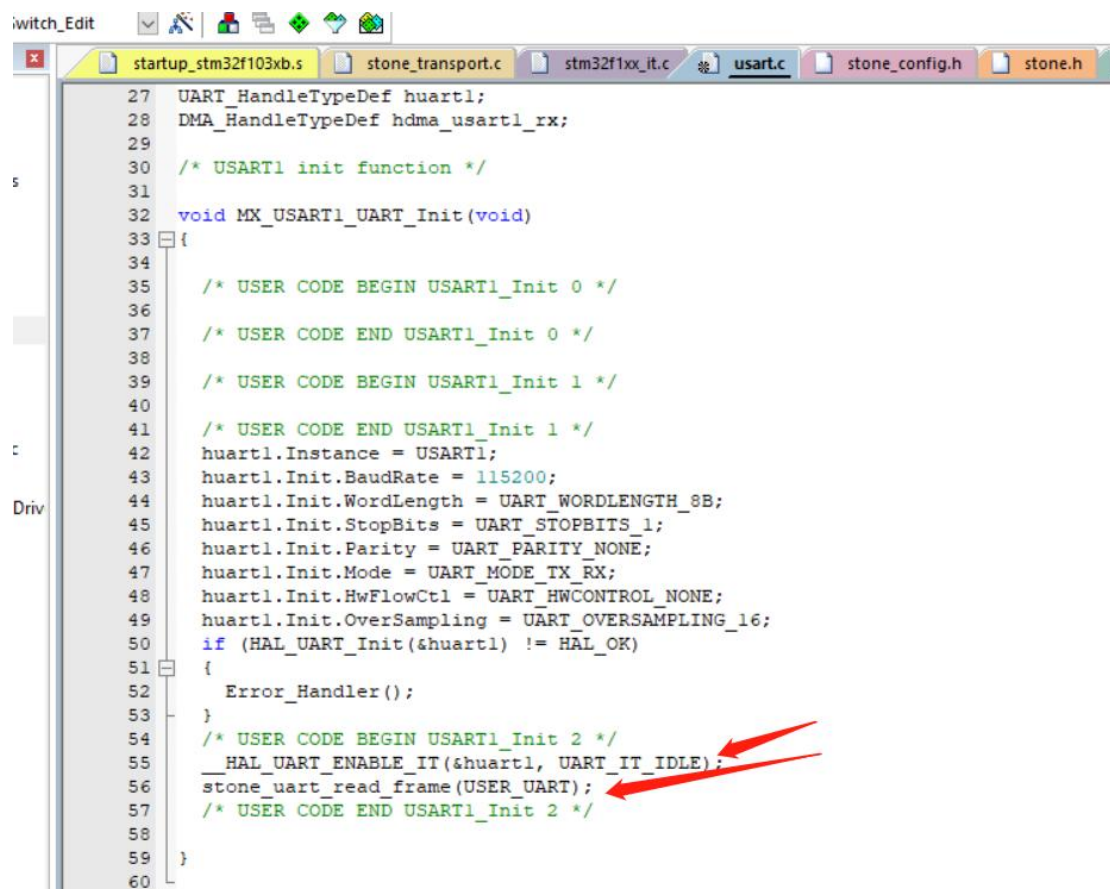


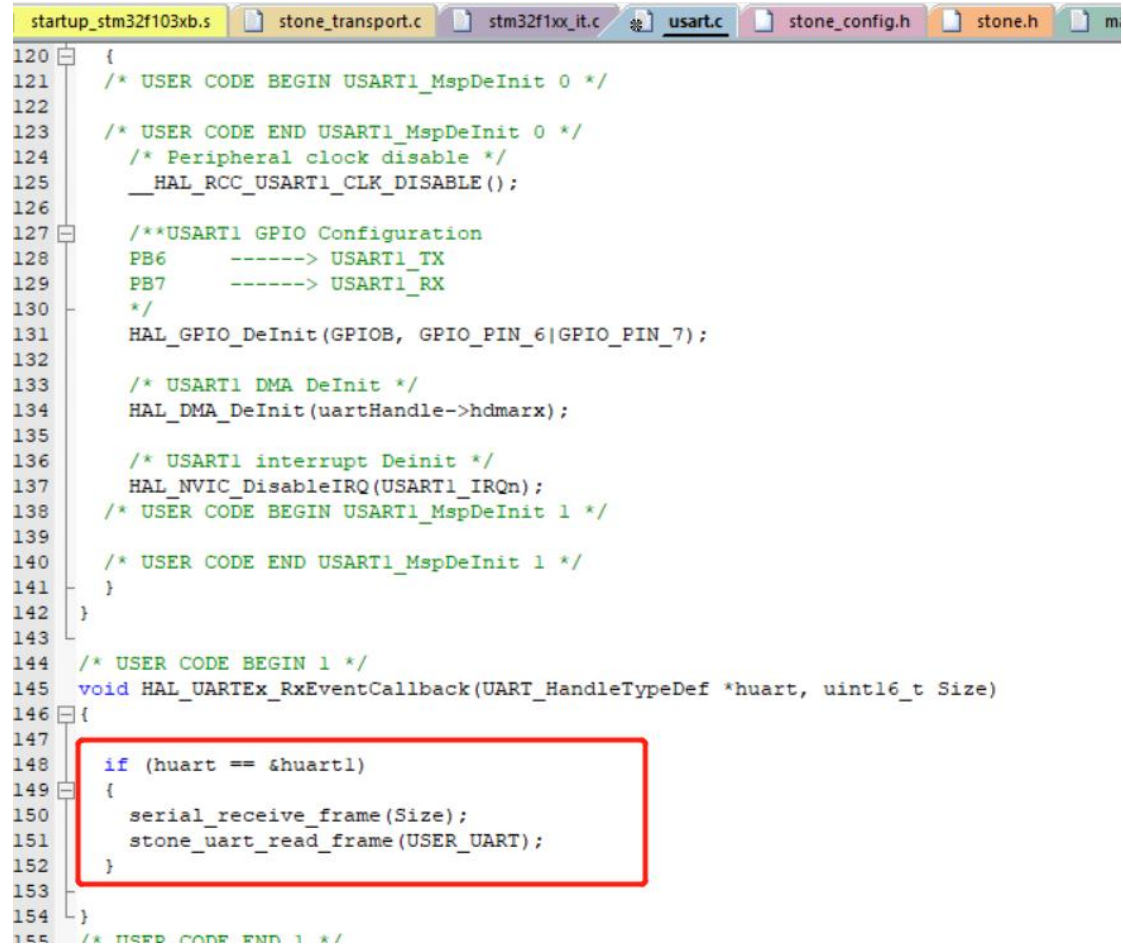
Method for the STM32HAL library to receive the return value of the STONEHMI instruction throughout the frame

1.Enable idle serial port reception in the corresponding serial port configuration function



```
27 UART_HandleTypeDef huart1;
28 DMA_HandleTypeDef hdma_usart1_rx;
29
30 /* USART1 init function */
31
32 void MX_USART1_UART_Init(void)
33 {
34
35     /* USER CODE BEGIN USART1_Init 0 */
36
37     /* USER CODE END USART1_Init 0 */
38
39     /* USER CODE BEGIN USART1_Init 1 */
40
41     /* USER CODE END USART1_Init 1 */
42     huart1.Instance = USART1;
43     huart1.Init.BaudRate = 115200;
44     huart1.Init.WordLength = UART_WORDLENGTH_8B;
45     huart1.Init.StopBits = UART_STOPBITS_1;
46     huart1.Init.Parity = UART_PARITY_NONE;
47     huart1.Init.Mode = UART_MODE_TX_RX;
48     huart1.Init.HwFlowCtl = UART_HWCONTROL_NONE;
49     huart1.Init.OverSampling = UART_OVERSAMPLING_16;
50     if (HAL_UART_Init(&huart1) != HAL_OK)
51     {
52         Error_Handler();
53     }
54     /* USER CODE BEGIN USART1_Init 2 */
55     HAL_UART_ENABLE_IT(&huart1, UART_IT_IDLE);
56     stone_uart_read_frame(USER_UART);
57     /* USER CODE END USART1_Init 2 */
58
59 }
60
```

2. Write a serial port callback function, call the whole frame instruction parsing function in the callback function, and then turn on idle receive again on the next line



```
120 {
121 /* USER CODE BEGIN USART1_MspDeInit 0 */
122
123 /* USER CODE END USART1_MspDeInit 0 */
124 /* Peripheral clock disable */
125 __HAL_RCC_USART1_CLK_DISABLE();
126
127 /**USART1 GPIO Configuration
128 PB6 -----> USART1_TX
129 PB7 -----> USART1_RX
130 */
131 HAL_GPIO_DeInit(GPIOB, GPIO_PIN_6|GPIO_PIN_7);
132
133 /* USART1 DMA DeInit */
134 HAL_DMA_DeInit(uartHandle->hdmarx);
135
136 /* USART1 interrupt Deinit */
137 HAL_NVIC_DisableIRQ(USART1_IRQn);
138 /* USER CODE BEGIN USART1_MspDeInit 1 */
139
140 /* USER CODE END USART1_MspDeInit 1 */
141 }
142 }
143
144 /* USER CODE BEGIN 1 */
145 void HAL_UARTEx_RxEventCallback(UART_HandleTypeDef *huart, uint16_t Size)
146 {
147
148     if (huart == &huart1)
149     {
150         serial_receive_frame(Size);
151         stone_uart_read_frame(USER_UART);
152     }
153
154 }
155 /* USER CODE END 1 */
```

3. Add frame list initializers and custom node Pointers to the first node of the initialized list in the main function or in the RTOS system task

```

83  HAL_Init();
84
85  /* USER CODE BEGIN Init */
86
87  /* USER CODE END Init */
88
89  /* Configure the system clock */
90  SystemClock_Config();
91
92  /* USER CODE BEGIN SysInit */
93
94  /* USER CODE END SysInit */
95
96  /* Initialize all configured peripherals */
97  MX_GPIO_Init();
98  MX_DMA_Init();
99  MX_USART1_UART_Init();
100 /* USER CODE BEGIN 2 */
101
102 frame_link_p=initLink();
103 frame_link * stone_user_link = frame_link_p;
104
105 /* USER CODE END 2 */
106

```

Write in the main function or task if you want to use whole-frame data reception

4. In the last step, as shown in the figure below, the code in the red box is written in a fixed way and put into the tasks of the main loop or RTOS system (note the position of the node pointer in the previous step).

The code in the green box is user-defined. Users can add their own functions here

```

111 /* USER CODE END WHILE */
112
113 /* USER CODE BEGIN 3 */
114 while (receive_over_flg >= 1)
115 {
116
117     stone_user_link=stone_user_link->next;
118     receive_parse_fifo(stone_user_link->base_offset);
119
120     memcpy(temp_widget,STONER.widget,STONER.widget_len);
121
122     if(STONER.cmd == control_switch || STONER.cmd == control_button)
123         sprintf(temp_str,"%s;value:%d",temp_widget,STONER.value);
124
125     else if(STONER.cmd == control_spin_box_int)
126         sprintf(temp_str,"%s;value:%ld",temp_widget,STONER.long_value);
127
128     else if(STONER.cmd == control_slider || STONER.cmd == control_slider_over)
129         sprintf(temp_str,"%s;value:%.2f",temp_widget,STONER.float_value);
130
131     else if(STONER.cmd == control_window)
132         set_buzzer("500");
133
134     else
135         sprintf(temp_str,"%s;value:%s",temp_widget,STONER.text);
136
137     set_text("label","label1",temp_str);
138
139     memset(temp_widget,NULL,20);
140     memset(temp_value,NULL,20);
141     memset(temp_str,NULL,40);
142
143     frame_link_p = delElem(frame_link_p);
144     if(frame_link_p->frame_count==0 && frame_link_p->next==NULL)
145         stone_user_link = frame_link_p;
146     receive_over_flg--;
147 }

```