**Data Packet Design**

LED

GUI TO MCU

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Operation Flag | Delimiter1 | Operation Payload1 | Delimiter2 | End Flag |
| L | ^ | '1' if (ON)  '0' if ( OFF) | & | @ |
| 1 Byte | 1 Byte | 1 Byte | 1 Byte | 1 Byte |

MCU TO GUI

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Operation Flag | Delimiter1 | Operation Payload1 | Delimiter2 | End Flag |
| L | ^ | '1' if Successful  '0' if Not Success | & | # |
| 1 Byte | 1 Byte | 1 Byte | 1 Byte | 1 Byte |

Timed Output

GUI TO MCU

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Operation Flag | Delimiter1 | Operation Payload | Delimiter2 | End Flag |
| N if (Enable)  F if (Disable) | ^ | Time in seconds (string) | & | @ |
| 1 Byte | 1 Byte | Length of Payload | 1 Byte | 1 Byte |

MCU TO GUI

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Operation Flag | Delimiter1 | Operation Payload | Delimiter2 | End Flag |
| T | ^ | '1' if Successful  '0' if Not Success | & | # |
| 1 Byte | 1 Byte | 1 Byte | 1 byte | 1 Byte |

**Status**

GUI TO MCU

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Operation Flag | Delimiter1 | Operation Payload | Delimiter2 | End Flag |
| S | ^ | ‘X’ (don’t care) | & | @ |
| 1 Byte | 1 Byte | 1 Byte | 1 Byte | 1 Byte |

MCU TO GUI

PIN STATUS

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Operation Flag | Delimiter1 | Operation Payload | Delimiter2 | End Flag |
| S | ^ | “High” if High  “Low” if Low | & | # |
| 1 Byte | 1 Byte | Length of payload | 1 byte | 1 Byte |

REMAINING TIME

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Operation Flag | Delimiter1 | Operation Payload | Delimiter2 | End Flag |
| R | ^ | Remaining Times | & | # |
| 1 Byte | 1 Byte | Length of payload | 1 byte | 1 Byte |

Digital Input

GUI TO MCU

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Operation Flag | Delimiter1 | Operation Payload | Delimiter2 | End Flag |
| D | ^ | ‘X’ (Don’t Care) | & | @ |
| 1 Byte | 1 Byte | 1 Byte | 1 Byte | 1 Byte |

MCU TO GUI

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Operation Flag | Delimiter1 | Operation Payload | Delimiter2 | End Flag |
| D | ^ | “High” if High  “Low” if Low | & | # |
| 1 Byte | 1 Byte | Length of payload | 1 byte | 1 Byte |

PWM

GUI TO MCU

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Operation Flag | Delimiter1 | Operation Payload | Delimiter2 | End Flag |
| I if Enable  J if Disable | ^ | Pulse in seconds (String) | & | @ |
| 1 Byte | 1 Byte | Length of Payload | 1 byte | 1 Byte |

MCU TO GUI

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Operation Flag | Delimiter1 | Operation Payload | Delimiter2 | End Flag |
| P | ^ | '1' if Successful  '0’ if Not Success | & | # |
| 1 Byte | 1 Byte | 1 Byte | 1 byte | 1 Byte |

ADC

GUI TO MCU

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Operation Flag | Delimiter1 | Operation Payload | Delimiter2 | End Flag |
| A | ^ | Channel No (String)  From 1 to …Nth channel | & | @ |
| 1 Byte | 1 Byte | Length of Payload | 1 byte | 1 Byte |

MCU TO GUI

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Operation Flag | Delimiter1 | Operation  Payload 1 | Delimiter2 | Operation Payload2 | Delimiter 3 | End Flag |
| A | ^ | Channel No (String)  From 1 to …Nth channel | & | Raw ADC Value (String) | \* | # |
| 1 Byte | 1 Byte | Length of Payload | 1 Byte | Length of payload | 1 Byte | 1 Byte |