HUSKYLENS Protocol Document

Version:

0.1

Designer:

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Init parameter:

- Serial Mode: 9600 (bps) 8N1
- Address: 0x11

Communication Command Frame Format:

Header	Header 2	Address	Data Length	Command	Data	Checksum
0x55	0xAA	1 byte	1 byte	1 byte	Data 1～Data n	1 byte

Hex	Function
0x55	Header
0xAA	Header 2
0x11	Address
0x0A	Data Length
0x2A	Command is 0x2A
0x2C	Data[0]
0x01	Data[1]
0xC8	Data[2]
0x00	Data[3]
0x0A	Data[4]
0x00	Data[5]
0x14	Data[6]
0x00	Data[7]
0x01	Data[8]
0x00	Data[9]
0x58	CheckSum, Sum all and only use low byte (Low Byte of 0x258 = 0x55 + 0xAA + 0x11 + 0x0A + 0x2A + 0x2C + 0x01 + 0xC8 + 0x00 + 0x0A + 0x00 + 0x14 + 0x00 + 0x01 +0x00)

General concept:

ID Meaning:

ID	Means
1	The first learned item is detected
2	The second learned item is detected
XXX	The XXXth learned item is detected
0	Item is detected but not learned, like unlearned faces block in grey color.

Protocol flow:

hosts	HUSKYLENS
COMMAND_REQUEST_KNOCK===>	
	<===COMMAND_RETURN_OK
COMMAND_REQUEST===>	
	<=== COMMAND_RETURN_INFO
	<=== COMMAND_RETURN_BLOCK
	<=== COMMAND_RETURN_BLOCK
	<=== COMMAND_RETURN_ARROW
COMMAND_REQUEST_BLOCKS====>	
	<=== COMMAND_RETURN_INFO
	<=== COMMAND_RETURN_BLOCK
	<=== COMMAND_RETURN_BLOCK
COMMAND_REQUEST_ARROWS====>	
	<=== COMMAND_RETURN_INFO
	<=== COMMAND_RETURN_ARROW
COMMAND_REQUEST_ALGORITHM===>	
	<===COMMAND_RETURN_OK

Commands List:

COMMAND_REQUEST (0x20):

Request all blocks and arrows from HUSKYLENS.

Header	Header 2	Address	Data Length	Command	Checksum
0x55	0xAA	0x11	0x00	0x20	0x30

COMMAND_REQUEST_BLOCKS (0x21):

Request all blocks from HUSKYLENS.

Header	Header 2	Address	Data Length	Command	Checksum
0x55	0xAA	0x11	0x00	0x21	0x31

COMMAND_REQUEST_ARROWS (0x22):

Request all arrows from HUSKYLENS.

Header	Header 2	Address	Data Length	Command	Checksum
0x55	0xAA	0x11	0x00	0x22	0x32

COMMAND_REQUEST_LEARNED (0x23):

Request all learned blocks and arrows (ID >=1) from HUSKYLENS.

Header	Header 2	Address	Data Length	Command	Checksum
0x55	0xAA	0x11	0x00	0x23	0x33

COMMAND_REQUEST_BLOCKS_LEARNED (0x24):

Request all learned blocks (ID >=1) from HUSKYLENS.

Header	Header 2	Address	Data Length	Command	Checksum
0x55	0xAA	0x11	0x00	0x24	0x34

COMMAND_REQUEST_ARROWS_LEARNED (0x25):

Request all learned arrows (ID >=1) from HUSKYLENS.

Header	Header 2	Address	Data Length	Command	Checksum
0x55	0xAA	0x11	0x00	0x25	0x35

COMMAND_REQUEST_BY_ID (0x26):

Request all blocks and arrows by given ID (Here is 0x01) from HUSKYLENS.

Header	Header 2	Address	Data Length	Command	Data	Checksum
0x55	0xAA	0x11	0x02	0x26	0x01 0x00	0x39

Data details:

Data	Function
0x01	Given ID, see **ID Details** above (Low Byte of 1 = 0x0001)
0x00	Given ID, see **ID Details** above (High Byte of 1 = 0x0001)

COMMAND_REQUEST_BLOCKS_BY_ID (0x27):

Request all blocks by given ID (Here is 0x01) from HUSKYLENS.

Header	Header 2	Address	Data Length	Command	Data	Checksum
0x55	0xAA	0x11	0x02	0x27	0x01 0x00	0x3A

Data details:

Data	Function
0x01	Given ID, see **ID Details** above (Low Byte of 1 = 0x0001)
0x00	Given ID, see **ID Details** above (High Byte of 1 = 0x0001)

COMMAND_REQUEST_ARROWS_BY_ID (0x28):

Request all arrows by given ID (Here is 0x01) from HUSKYLENS.

Header	Header 2	Address	Data Length	Command	Data	Checksum
0x55	0xAA	0x11	0x02	0x28	0x01 0x00	0x3B

Data details:

Data	Function
0x01	Given ID, see **ID Details** above (Low Byte of 1 = 0x0001)
0x00	Given ID, see **ID Details** above (High Byte of 1 = 0x0001)

COMMAND_RETURN_INFO (0x29):

When HUSKYLENS Receives the command above, HUSKYLENS will return this info first and then return the arrows and blocks.

Header	Header 2	Address	Data Length	Command	Data	Checksum
0x55	0xAA	0x11	0x0A	0x29	0x01 0x00 0x01 0x00 0x05 0x00 0x00 0x00 0x00 0x00	0x4A

Data details:

Data	Function
0x01	numbers of blocks and arrows from HUSKYLENS (Low Byte of 1 = 0x0001)
0x00	numbers of blocks and arrows from HUSKYLENS (High Byte of 1 = 0x0001)
0x01	numbers of IDs HUSKYLENS have learned (Low Byte of 1 = 0x0001)
0x00	numbers of IDs HUSKYLENS have learned (High Byte of 1 = 0x0001)
0x05	current frame number (Low Byte of 5 = 0x0005)
0x00	current frame number (High Byte of 5 = 0x0005)
0x00	reserved
0x00	reserved
0x00	reserved
0x00	reserved

COMMAND_RETURN_BLOCK(0x2A):

After HUSKYLENS returns info, HUSKYLENS will return the blocks like this:

Header	Header 2	Address	Data Length	Command	Data	Checksum
0x55	0xAA	0x11	0x0A	0x2A	0x2C 0x01 0xC8 0x00 0x0A 0x00 0x14 0x00 0x01 0x00	0x58

Data details:

Hex	Function
2C	X Center of Block (Low Byte of 300 = 0x012C, range:0-319)
01	X Center of Block (High Byte of 300 = 0x012C, range:0-319)
C8	Y Center of Block (Low Byte of 200 = 0x00C8, range:0-239)
00	Y Center of Block (High Byte of 200 = 0x00C8, range:0-239)
0A	Width of Block (Low Byte of 10 = 0x000A, range:0-319)
00	Width of Block (High Byte of 10 = 0x000A, range:0-319)
14	Height of Block (Low Byte of 20 = 0x0014, range:0-239)
00	Height of Block (High Byte of 20 = 0x0014, range:0-239)
01	ID, see **ID Details** below (Low Byte of 1 = 0x0001)
00	ID, see **ID Details** below (High Byte of 1 = 0x0001)

COMMAND_RETURN_ARROW(0x2B):

After HUSKYLENS returns info, HUSKYLENS will return the arrows like this:

Header	Header 2	Address	Data Length	Command	Data	Checksum
0x55	0xAA	0x11	0x0A	0x2B	0x2C 0x01 0xC8 0x00 0x0A 0x00 0x14 0x00 0x01 0x00	0x5A

Data details:

Data	Function
2C	X Origin of Arrow (Low Byte of 300 = 0x012C, range:0-319)
01	X Origin of Arrow (High Byte of 300 = 0x012C, range:0-319)
C8	Y Origin of Arrow (Low Byte of 200 = 0x00C8, range:0-239)
00	Y Origin of Arrow (High Byte of 200 = 0x00C8, range:0-239)
0A	X Target of Arrow (Low Byte of 10 = 0x000A, range:0-319)
00	X Target of Arrow (High Byte of 10 = 0x000A, range:0-319)
14	Y Target of Arrow (Low Byte of 20 = 0x0014, range:0-239)
00	Y Target of Arrow (High Byte of 20 = 0x0014, range:0-239)
01	Index of the learned items (Low Byte of 1= 0x0001)
00	Index of the learned items (High Byte of 1 = 0x0001)

COMMAND_REQUEST_KNOCK(0x2C):

Used for test connection with HUSKYLENS. When HUSKYLENS received this command, HUSKYLENS will return COMMAND_RETURN_OK.

Header	Header 2	Address	Data Length	Command	Checksum
0x55	0xAA	0x11	0x00	0x2C	0x3C

COMMAND_REQUEST_ALGORITHM(0x2D):

When HUSKYLENS receives this command, HUSKYLENS will change the algorithm by the Data. And will return COMMAND_RETURN_OK.

Header	Header 2	Address	Data Length	Command	Data	Checksum
0x55	0xAA	0x11	0x02	0x2D	0x01 0x00	0x40

Data details:

Data	Function
0x01	Change to ALGORITHM_OBJECT_TRACKING (Low Byte of 1 = 0x0001)
0x00	Change to ALGORITHM_OBJECT_TRACKING (High Byte of 1 = 0x0001)

Data's correspondent algorithm:

Data	Algorithm
0x00 0x00	ALGORITHM_FACE_RECOGNITION
0x01 0x00	ALGORITHM_OBJECT_TRACKING
0x02 0x00	ALGORITHM_OBJECT_RECOGNITION
0x03 0x00	ALGORITHM_LINE_TRACKING
0x04 0x00	ALGORITHM_COLOR_RECOGNITION
0x05 0x00	ALGORITHM_TAG_RECOGNITION
0x06 0x00	ALGORITHM_OBJECT_CLASSIFICATION

COMMAND_RETURN_OK(0x2E):

HUSKYLENS will return OK, if HUSKYLENS receives COMMAND_REQUEST_ALGORITHM, COMMAND_REQUEST_KNOCK.

Header	Header 2	Address	Data Length	Command	Checksum
0x55	0xAA	0x11	0x00	0x2E	0x3E