OpenSwarm Cheat Sheet

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1 Basic

These functions are required to initialise and run OpenSwarm.

Description	Function Name
Initialise OpenSwarm	`Sys_Init_Kernel()`
Start OpenSwarm	`Sys_Start_Kernel()`

2 Threads

The following functions describe how threads can be used and controlled.

Description	Function Name
Create a new thread	`Sys_Start_Process(pFunction` function)

To control the work flow of a thread, the following functions can be used (Note that a critical section is a sequence of code that cannot be interrupted by any interrupt):

Description	Function Name
Wait for an event	`sys_event_data *Sys_Wait_For_Event(uint` eventID)
Wait for a condition	`sys_event_data *Sys_Wait_For_Condition(uint` eventID, `pConditionFunction` c)
Start a Critical Section	`Sys_Start_AtomicSection()`
Stop a Critical Section	`Sys_End_AtomicSection()`

3 Events

Events can be used by executing the following functions. Note that an event has, first, to be registered before it can be used. Subscribed handlers can, then, receive sent events.

Description	Function Name
Register an event	`Sys_Register_Event(uint` eventID)
Unregister an event	`Sys_Unregister_Event(uint` eventID)
Subscribe a handler	`Sys_Subscribe_to_Event(uint` eventID, `pEventHandlerFunction` h, `pConditionFunction` c, void *user_data)
Unsubscribe an event	`Sys_Unsubscribe_Handler(uint` eventID, `pEventHandlerFunction` handler, void *user_data)
Send an event	`Sys_Send_Event(uint` eventID, void *data, `uint` data_size)
Send an integer event	`Sys_Send_IntEvent(uint` eventID,`uint` data)

Here are all predefined events IDs and the types used by the event.

Description	Event-ID	Used type	Range
Left motor speed (mm/s)	SYS_EVENT_IO_MOTOR_LEFT	sint	± 128 mm/s
Right motor speed (mm/s)	SYS_EVENT_IO_MOTOR_RIGHT	sint	± 128 mm/s
Camera one pixel	SYS_EVENT_IO_CAMERA	sys_colour	see list below
Remote control commands	SYS_EVENT_IO_REMOECONTROL	uint8	see list below
Selector value has changed to ...	SYS_EVENT_IO_SELECTOR_CHANGE	uint8	0-15
Proximity sensor 0 (mm)	SYS_EVENT_IO_PROX_0	uint16	0-100[a]mm
Proximity sensor 1 (mm)	SYS_EVENT_IO_PROX_1	uint16	0-100[a]mm
Proximity sensor 2 (mm)	SYS_EVENT_IO_PROX_2	uint16	0-100[a]mm
Proximity sensor 3 (mm)	SYS_EVENT_IO_PROX_3	uint16	0-100[a]mm
Proximity sensor 4 (mm)	SYS_EVENT_IO_PROX_4	uint16	0-100[a]mm
Proximity sensor 5 (mm)	SYS_EVENT_IO_PROX_5	uint16	0-100[a]mm
Proximity sensor 6 (mm)	SYS_EVENT_IO_PROX_6	uint16	0-100[a]mm
Proximity sensor 7 (mm)	SYS_EVENT_IO_PROX_7	uint16	0-100[a]mm

[a]The value can also be 65535, if the sensor could not detect an object

4 Remote Control

Here is a list of all remote control buttons based on the RC-5 coding (special keys are from Toshiba RC-3910)

Button	Name
Standby	RC_BUTTON_STANDBY
Screen	RC_BUTTON_SCREEN
Language	RC_BUTTON_LANG
Subtitle	RC_BUTTON_SUBTTL
Internet	RC_BUTTON_INTERNET
red	RC_BUTTON_RED
green	RC_BUTTON_GREEN
yellow	RC_BUTTON_YELLOW
blue	RC_BUTTON_BLUE
0	RC_BUTTON_0
1	RC_BUTTON_1
2	RC_BUTTON_2
3	RC_BUTTON_3
4	RC_BUTTON_4
5	RC_BUTTON_5
6	RC_BUTTON_6
7	RC_BUTTON_7
8	RC_BUTTON_8
9	RC_BUTTON_9
Teletext	RC_BUTTON_TELE_TEXT
Swap	RC_BUTTON_SWAP
OK	RC_BUTTON_OK
Cursor: UP	RC_BUTTON_CURSOR_UP
Cursor: DOWN	RC_BUTTON_CURSOR_DOWN
Cursor: LEFT	RC_BUTTON_CURSOR_LEFT
Cursor: RIGHT	RC_BUTTON_CURSOR_RIGHT
Back	RC_BUTTON_BACK
Menu	RC_BUTTON_MENU
Epg	RC_BUTTON_EPG
Favourite	RC_BUTTON_FAV
Source	RC_BUTTON_SOURCE
Info	RC_BUTTON_INFO

Preset	RC_BUTTON_PRESETS
Sleep	RC_BUTTON_SLEEP
Volume: UP	RC_BUTTON_VOLUME_UP
Volume: Down	RC_BUTTON_VOLUME_DOWN
Channel: UP	RC_BUTTON_CHANNEL_UP
Channel: Down	RC_BUTTON_CHANNEL_DOWN
Mute	RC_BUTTON_MUTE
Pause	RC_BUTTON_PAUSE
Rewind	RC_BUTTON_REWIND
Wind	RC_BUTTON_WIND
Play	RC_BUTTON_PLAY
Stop	RC_BUTTON_STOP
Record	RC_BUTTON_RECORD

5 Colour

The following colour values are defined in OpenSwarm.

Colour Name
BLACK
RED
YELLOW
GREEN
CYAN
BLUE
MAGENTA
WHITE

6 Send something to the PC

To send something to the PC, one can use Bluetooth. Use UART1 to use the Bluetooth.

Description	Function Name
Send data	Sys_Writeto_UART1(uint8 *data, uint length)