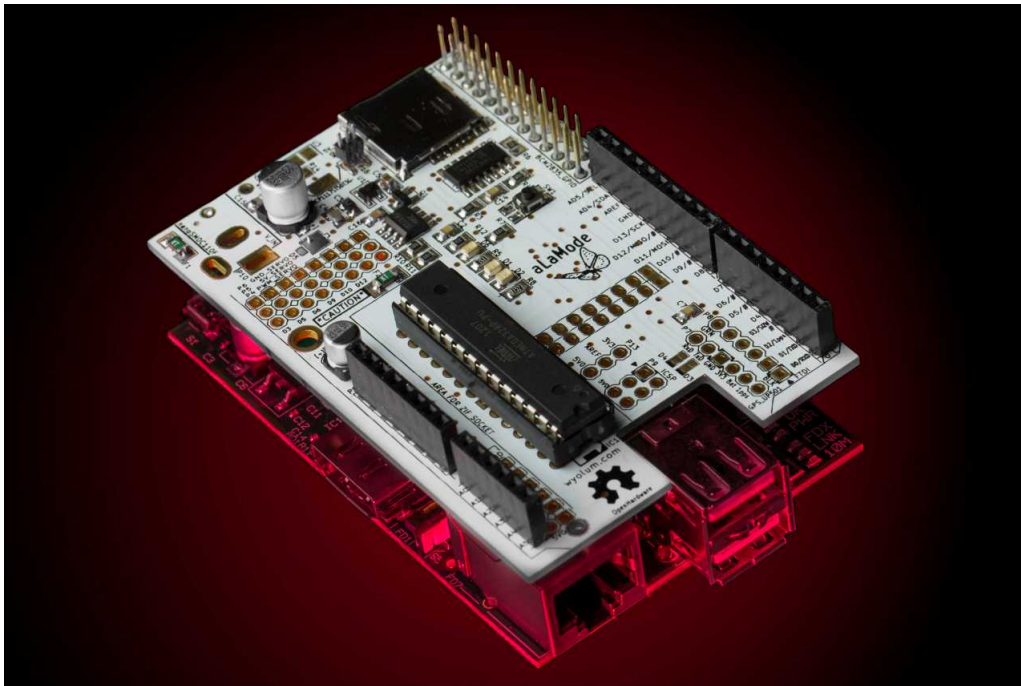




AlaMode

*An Arduino compatible board for the
Raspberry-Pi®*

brought to you by





Features

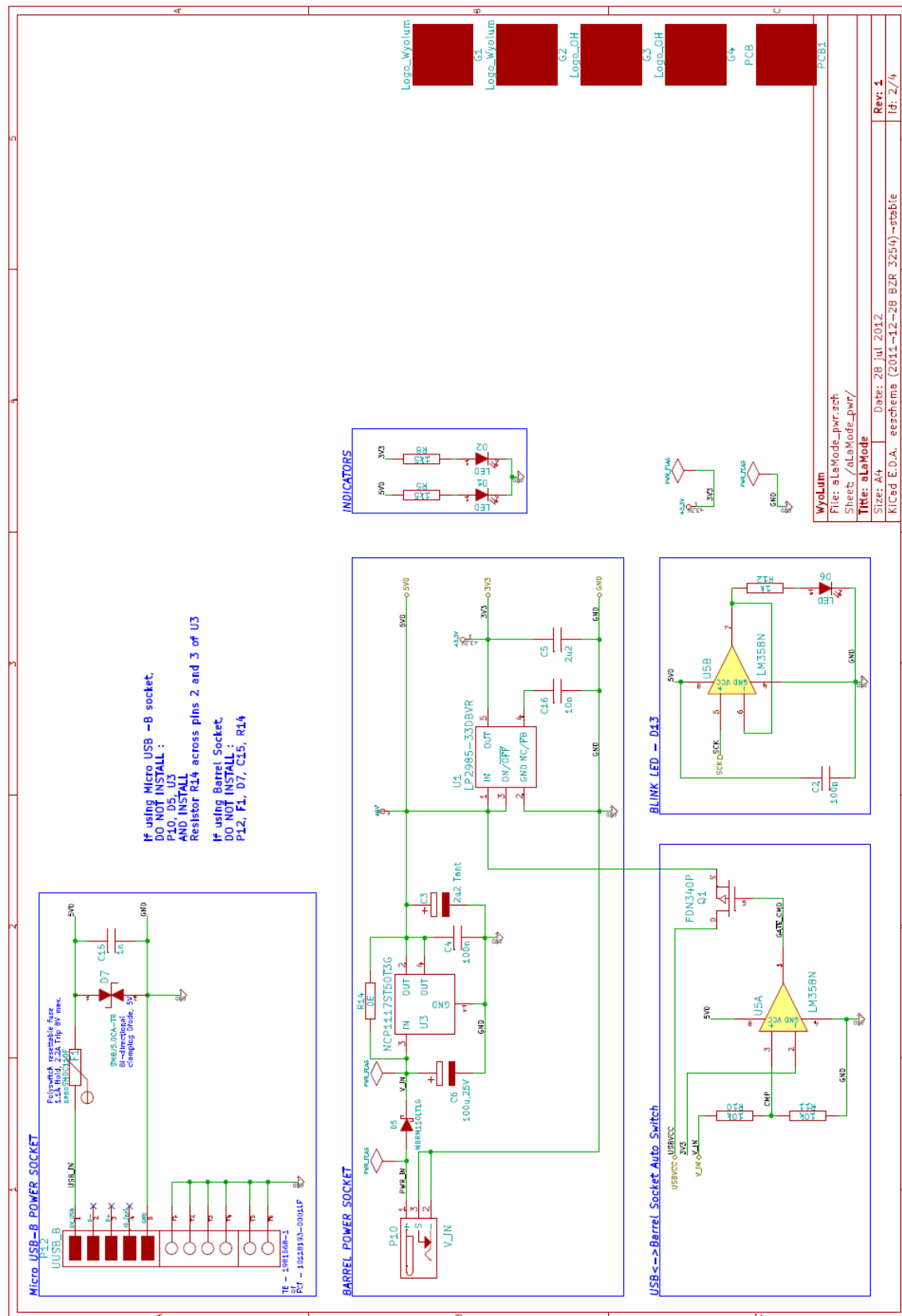
- micro SD card reader
- Temperature controlled, precision Real Time clock, with battery backup
- GPS interface for the Fastrax UP501 module
- Arduino compatible, with standard shield headers
- General purpose blink LED on port D13
- Interfaces with Raspberry-Pi® via the GPIO header
- Communicates with Raspberry-Pi via I2C, SPI or Serial UART
- Analog reference can be set to either 5V0 or 3V3
- Analog header has 5V0, 3V3 and GND headers, to allow interfacing 3 wire sensors directly.
- Servo header with 5V0 and GND connections to allow interfacing 3 wire servos directly
- Servos can be powered via on-board 5V0 or from external 5V
- FTDI and ISP headers for programming and sketch loading
- Power via external 5V to micro-USB socket, or directly from Raspberry-Pi
- 5V0 and 3V3 indicator LEDs

Potential Uses

- Stand-alone data logger
- Simple-to-use, persistent storage
- Program loader for separate Arduino compatible

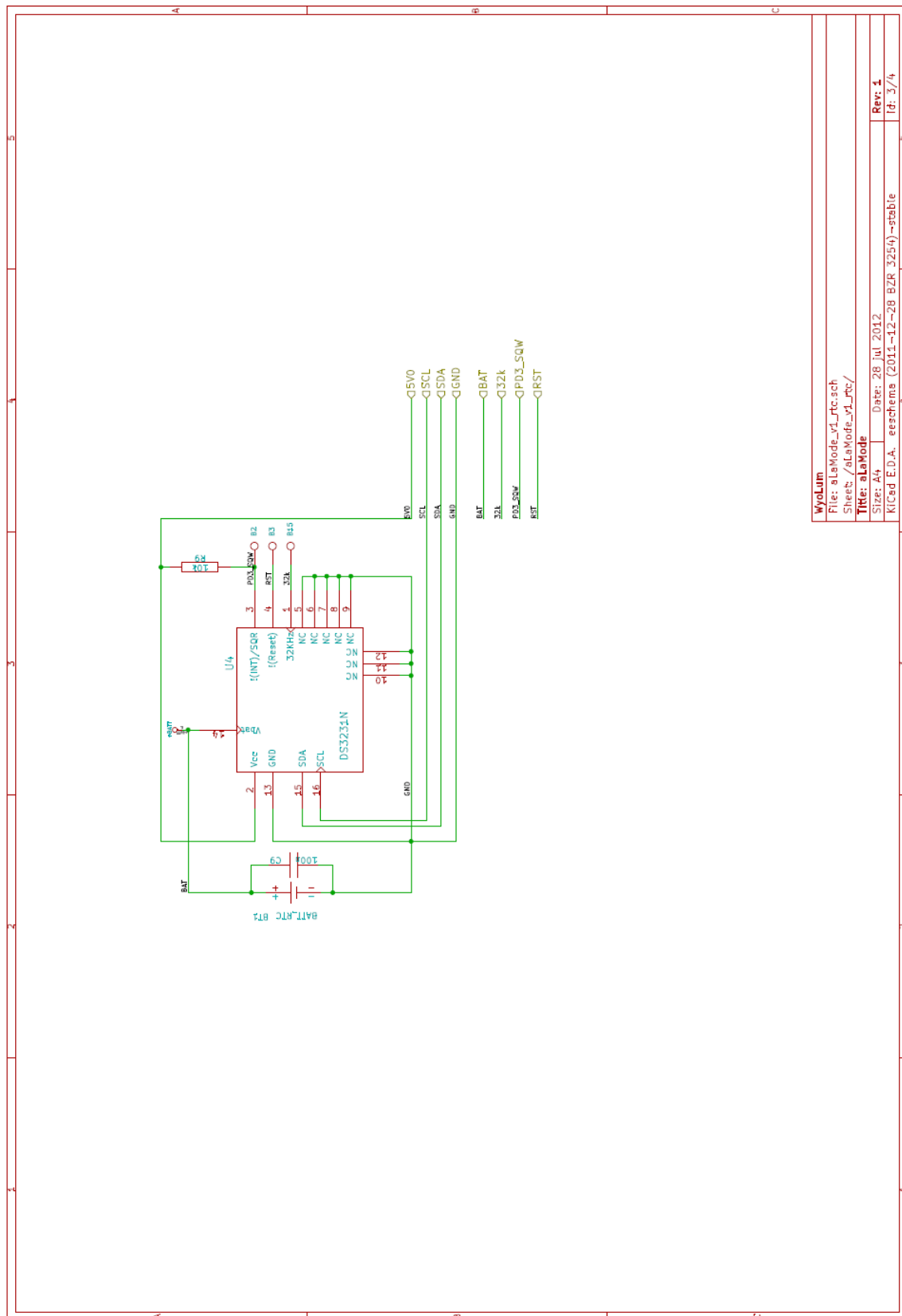


Schematic, #2





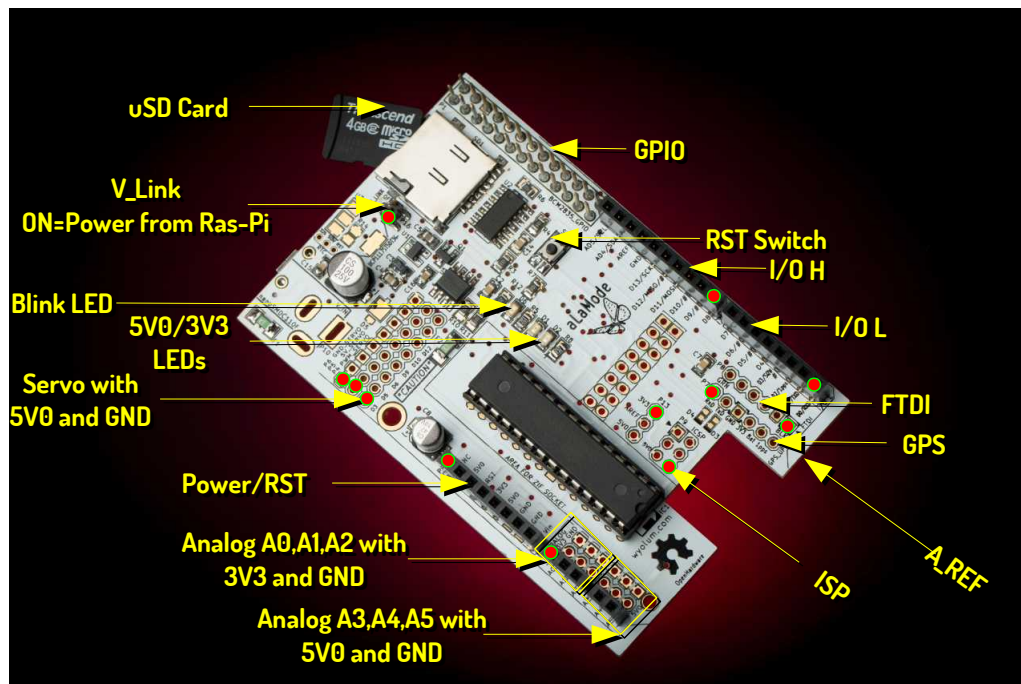
Schematic, #3



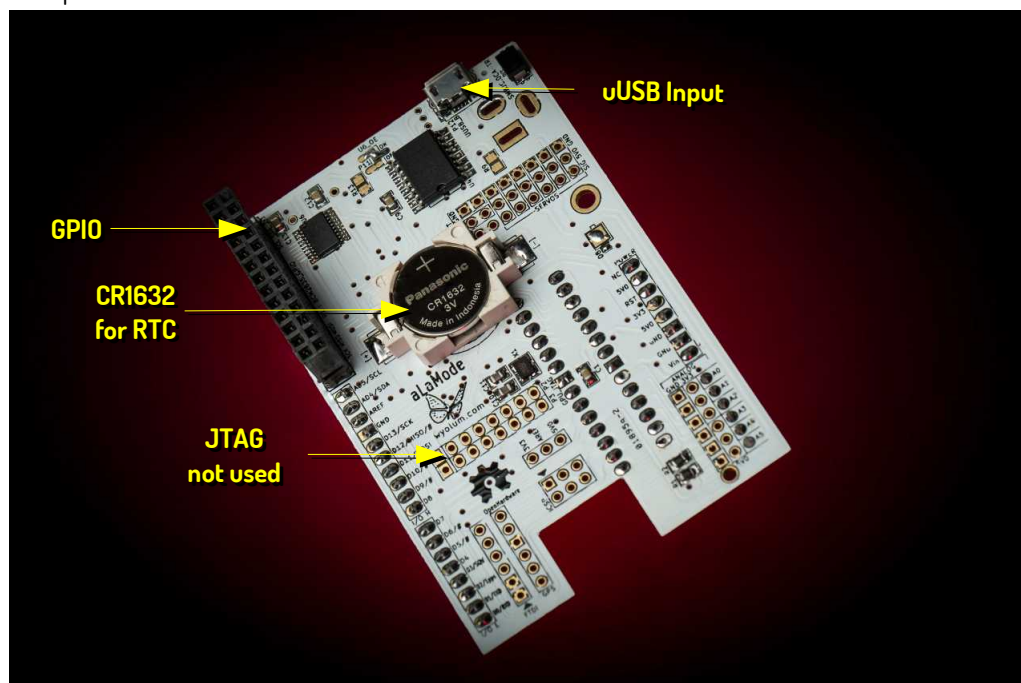




Physical Interfaces



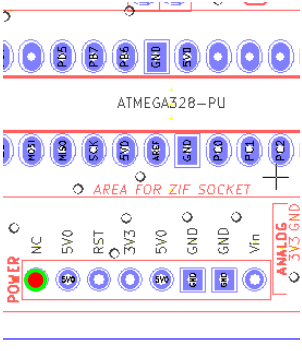
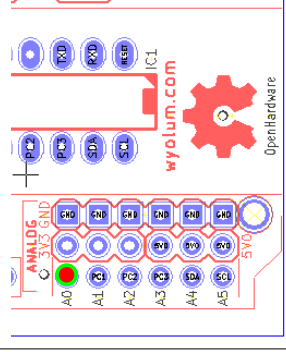
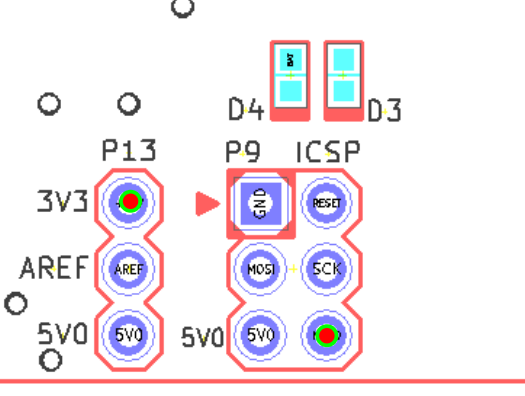
NOTE : Picture shows the prototype Beta boards. Final production boards do not have the cutout, and GPS header is re-positioned.





Physical Interfaces, Description

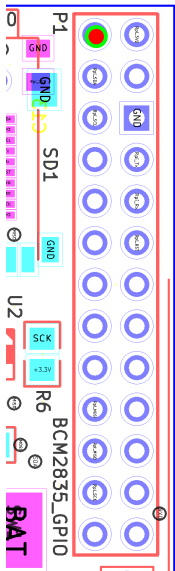
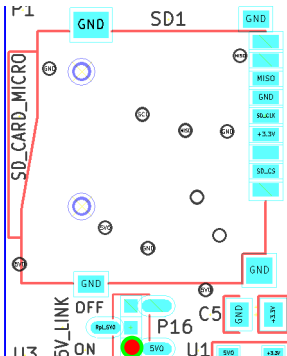
[**RED** Markers point to Pin # 1 of each header]

HEADER POWER	
	1. NC 2. 5V0 3. RST 4. 3V3 5. 5V0 6. GND 7. GND 8. Vin (Note : 5V only)
HEADER ANALOG	
	1. A0 : 3V3 : GND 2. A1 : 3V3 : GND 3. A2 : 3V3 : GND 4. A3 : 5V0 : GND 5. A4 : 5V0 : GND , SDA 6. A5 : 5V0 : GND , SCL
HEADER's ISP and AREF	
	1. MISO 2. 5V0 3. SCK 4. MOSI 5. RST 6. GND 1. 3V3 2. AREF 3. 5V0

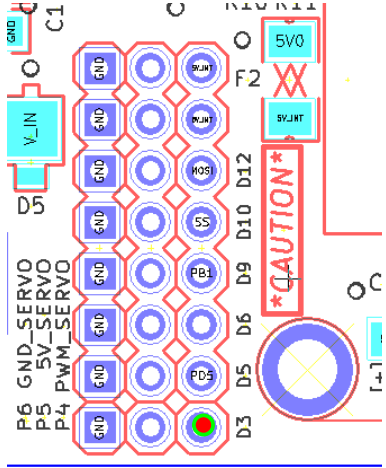
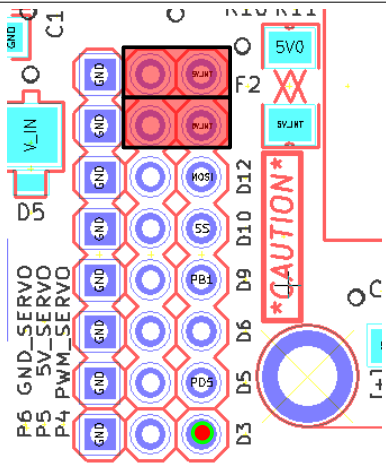
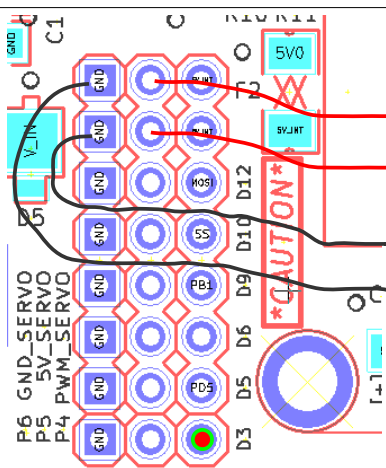


HEADER's GPS and FTDI	1. GPS_Rx , PD4 (Arduino digital pin 4) 2. GPS_Tx , PD6 (Arduino digital pin 6) 3. GND 4. 3V3 5. GPS_BATT (backup for GPS, from RTC 3V batt.) 6. 1pps , PD2 (Arduino digital pin 2) 1. GND (BLACK) 2. GND 3. 5V0 4. RXD , PD0 (Arduino digital pin 0) 5. TXD , PD1 (Arduino digital pin 1) 6. RESET (GREEN)
HEADER's I/O L and I/O H	1. PD0 , RXD 2. PD1 , TXD 3. PD2 , 1pps (GPS) 4. PD3 , SQW (RTC) , # (PWM1) 5. PD4 , GPS Rx 6. PD5 , # (PWM2) 7. PD6 , GPS Tx , # (PWM3) 8. PD7 , 9. PD8 , 10. PD9 , # (PWM4) 11. PD10 , SS # (PWM5) 12. PD11 , MOSI , # (PWM6) 13. PD12 , MISO 14. PD13 , SCK 15. GND , 16. AREF , 17. AD4 , SDA 18. AD5 , SCL



HEADER GPIO																											
	<table><tr><td>1. Rpi_3V3</td><td>2. Rpi_5V0</td></tr><tr><td>3. Rpi_SDA , SDA0</td><td>4. NC</td></tr><tr><td>5. Rpi_SCL , SCL0</td><td>6. GND</td></tr><tr><td>7. NC , GPIO4</td><td>8. Rpi_Tx</td></tr><tr><td>9. NC</td><td>10. Rpi_Rx</td></tr><tr><td>11. NC , GPIO 0</td><td>12. Rpi_RST , GPIO 1</td></tr><tr><td>13. NC , GPIO 2</td><td>14. NC</td></tr><tr><td>15. NC , GPIO 3</td><td>16. NC , GPIO 4</td></tr><tr><td>17. NC</td><td>18. NC , GPIO 5</td></tr><tr><td>19. Rpi_MOSI</td><td>20. NC</td></tr><tr><td>21. Rpi_MISO</td><td>22. NC , GPIO 6</td></tr><tr><td>23. Rpi_SCK</td><td>24. NC , SPI_CE0</td></tr><tr><td>25. NC</td><td>26. NC , SPI_CE1</td></tr></table>	1. Rpi_3V3	2. Rpi_5V0	3. Rpi_SDA , SDA0	4. NC	5. Rpi_SCL , SCL0	6. GND	7. NC , GPIO4	8. Rpi_Tx	9. NC	10. Rpi_Rx	11. NC , GPIO 0	12. Rpi_RST , GPIO 1	13. NC , GPIO 2	14. NC	15. NC , GPIO 3	16. NC , GPIO 4	17. NC	18. NC , GPIO 5	19. Rpi_MOSI	20. NC	21. Rpi_MISO	22. NC , GPIO 6	23. Rpi_SCK	24. NC , SPI_CE0	25. NC	26. NC , SPI_CE1
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MICRO HEADER 5V-LINK																											
	<table><tr><td>1. 5V0</td></tr><tr><td>2. Rpi_5V0</td></tr><tr><td>3. NC</td></tr></table> If ON, AlaMode is powered via Rpi 5V0 If OFF, AlaMode needs to be powered via P12, u-USB socket	1. 5V0	2. Rpi_5V0	3. NC																							
1. 5V0																											
2. Rpi_5V0																											
3. NC																											



HEADER SERVO	
	1. PWM1 , PD3 5V_SERVO GND_SERVO 2. PWM2 , PD5 5V_SERVO GND_SERVO 3. PWM3 , PD6 5V_SERVO GND_SERVO 4. PWM4 , PD9 5V_SERVO GND_SERVO 5. PWM5 , PD10 5V_SERVO GND_SERVO 6. PWM6 , PD11 5V_SERVO GND_SERVO 7. 5V_INT 5V_SERVO GND_SERVO 8. 5V_INT 5V_SERVO GND_SERVO ERRATA : PWM6 = PD11 , MOSI (NOT PD12)
	To power Servos via AlaMode 5V0 supply (internal mode), fix shorting links/jumpers between Pin 7 (5V_INT) and 5V_SERVO and Pin 8 (5V_INT) and 5V_SERVO as marked here (red rectangles) (Note : Single jumper will work too. Dual jumpers allow higher current capacity)
	To power Servos via External 5V supply (external mode), connect 5V_SERVO to 5V_Ext 5V_SERVO to 5V_Ext and GND to GND_Ext GND to GND_Ext as marked here (red / gray rectangles) (Note : Single connections will work too. Dual connections allow higher current capacity)



LINKS

- website : www.wyolum.com
- e-mail : info@wyolum.com
- forum : <http://wyolum.com/forum/forumdisplay.php?fid=14>
- Git Repo : <https://github.com/wyolum/alamode>
- Arduino : <http://www.arduino.cc/>