Zen Hat Pinout

Exposed Heade	Hat Use		Use	Name	Connector		Name	Use		Hat Use	Exposed Header
GPIO Header				3v3	1	2	5v				
GPIO Header	Accelerometer, ADC, Audio		I2C1 - SDA	GPIO2	3	4	5v				LED Strip
GPIO Header	Accelerometer, ADC, Audio		I2C1 - SCL	GPIO3	5	6	GND			UART Header	UART Header
GPIO Header		X		GPIO4	7	8	GPIO14	UART - TXD	X	UART - TXD	UART Header
GPIO Header				GND	9	10	GPIO15	UART - RXD	X	UART - RXD	UART Header
	Rotary Encoder - EQEP0_B			GPIO17	11	12	GPIO18	PCM - CLK		Audio - BCLK	
	LCD - DC			GPIO27	13	14	GND				LED Strip
	LCD - RST			GPIO22	15	16	GPIO23		X	NeoPixel Data Out (R5 GPIO)	LED Strip
				3v3	17	18	GPIO24			Encoder Push-button (R5 GPIO)	
GPIO Header	LCD - DIN		SPI0 - MOSI	GPIO10	19	20	GND				
GPIO Header		X?	SPI0 - MISO	GPIO9	21	22	GPIO25			LED	
GPIO Header	LCD - CLK		SPI0 - SCLK	GPIO11	23	24	GPIO8	SPI0 - CE0		LCD - CS	
				GND	25	26	GPIO7	SPI0 - CE1	X		GPIO Header
	<only I2C, but prefer I2C1>		EEPROM - SDA	GPIO0	27	28	GPIO1	EEPROM-SCL		*<only I2C, but prefer I2C1>*	
	Joystick Push-button			GPIO5	29	30	GND				
GPIO Header		X		GPIO6	31	32	GPIO12	PWM0		LED Emitter	
	LCD - Backlight (BL)		PWM1	GPIO13	33	34	GND				
	Audio - WCLK		PCM - FS	GPIO19	35	36	GPIO16			Rotary Encoder - EQEP0_A	
	Audio - Reset			GPIO26	37	38	GPIO20	PCM - DIN		Audio - DIN	
				GND	39	40	GPIO21	PCM - DOUT		Audio - DOUT	

		X	Available GPIO

ADC Channels	Use
1	Analog Joystick X (or Y)
2	Analog Joystick Y (or X)
3	LED Receiver output
4	Header with VRef & GND

Using GPIO

https://docs.beagleboard.org/boards/beagley/ai/demos/beagley-ai-using-gpio.html