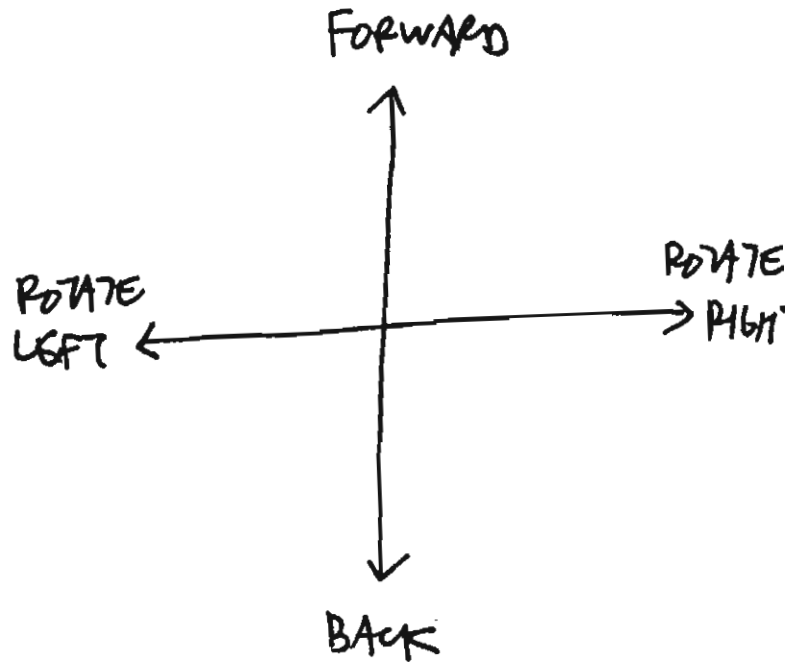
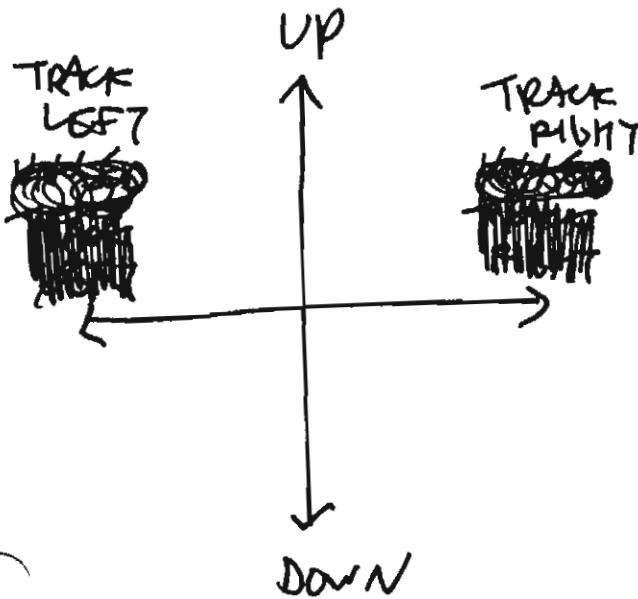


SEA CAVE THUMB CONTROLS

9.25.08

LEFT THUMB

RIGHT THUMB



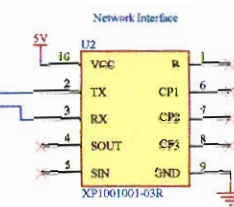
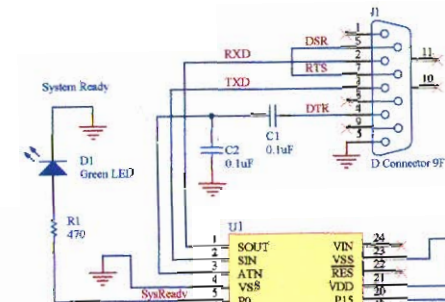
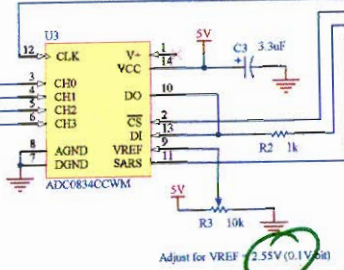
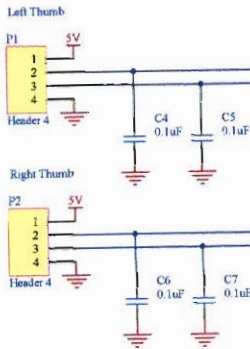
- LIMIT SPEED TO ROV TO AVOID DAMAGE TO TANK, FISH, OR CORAL
- FIXED SPEED

ROV HAS 4 THRUSTERS:

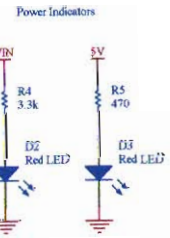
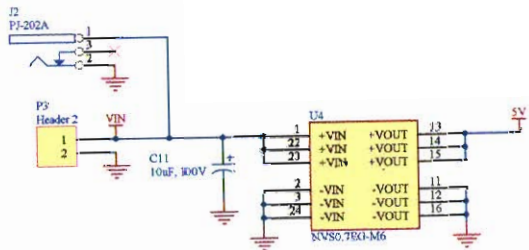
- 1) PORT (LEFT)
- 2) STARBOARD (RIGHT)
- 3) LATERAL
- 4) VERTICAL

- USE "MOTOR CONTROL ORDER MESSAGE" DATA PACKET

Joystick Magnetic Position Sensors
(Wired from Sea Scooter Handle)



Power Supply Input (18-75VDC)



GRAND
idea studio

Prototype This: Sea Cave Control Unit

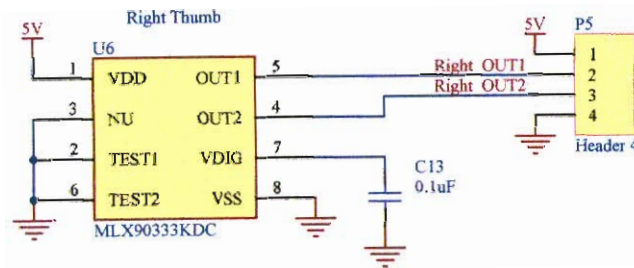
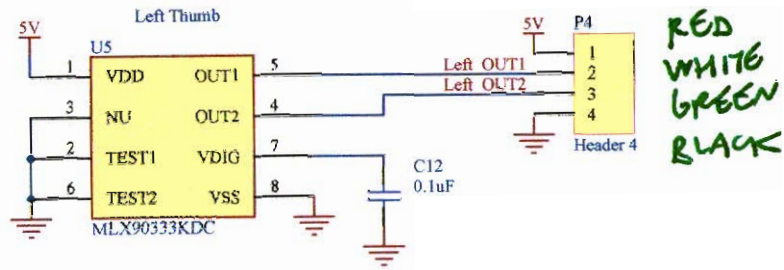
DATE	DESIGNED BY	DATE	REV
9/11/2008	Joe Grand	B	A

PJYS

VIN = BLUE/BROWN/BLACK/WH

GND = GREEN/BROWN/BLACK/WH

Joystick/Magnetic Position Sensors



TITLE Prototype This: Sea Cave Thumb Controls

DATE 9/11/2008 FILENAME Development Notes, www.grandideastudio.com SIZE A SH1 1 of 1 DRAWN BY Joe Grand REV A

Prototype This! Episode 10: Virtual Sea Adventure, Joe Grand's

Quantity	Designator	Comment	Description	Footprint	LibRef	Value
11	C1, C2, C4, C5, C6, C7, C8, C9, C10, C11, C12	Cap	Capacitor	VP32-3.2	Cap	0.1uF
1	C3	Cap Pol1	Polarized Capacitor (Radial)	B	Cap Pol1	3.3uF
1	C13	10uF, 100V	Polarized Capacitor (Radial)	CAPPR2.5-6.3X11.5	Cap Pol1	
1	D1	Green LED	Typical INFRARED GaAs LED	LED	LED0	
2	D2, D3	Red LED	Typical INFRARED GaAs LED	LED	LED0	
1	J1	D Connector 9F	Receptacle Assembly, 9 Position, Right Angle	DSUB1.385-2H9	D Connector 9	
1	J2	PJ-202A		PJ-202A	PHONEJACK_2	
1	P1	Header 2	Header, 2-Pin	MSTB-2	Header 2	
2	R1, R5	Res1	Resistor	AXIAL-0.3	Res1	470
1	R2	Res1	Resistor	AXIAL-0.3	Res1	1k
1	R3	RPot	Potentiometer	VR5	RPot	10k
1	R4	Res1	Resistor	AXIAL-0.3	Res1	3.3k
1	U1	BS2		DIP24W	BS2	
1	U2	XP1001001-03R		XPORT	XPORT	
2	U3, U5	MLX90333KDC		SO-G8	MLX90333	
1	U4	ADC0834CCWM	8-Bit Serial I/O A/D Converter with Multiplexer Option	M14B_L	ADC0834CCWM	
1	U6	NVS0.7EG-M6		NV DC-DC CONVERTER	NVS0.7EG-M6	

24V \Rightarrow power supply - Jameco # 295902 - MEANWELL SE-600-24
24V @ 2.5A

MAX. CURRENT, NO WATER : ~~2.5A~~
STEADY STATE = 2.4A

IN WATER : ~~2.5A~~
STEADY STATE = ~1.0A

OR JAMECO # 1585565
POTRANS FS-32024-1M
24V @ 1.5A

to process a circuit board

LDI

Clean Room

DARK BLUE TO LIGHT BLUE

Specialty
exp. to
manufact



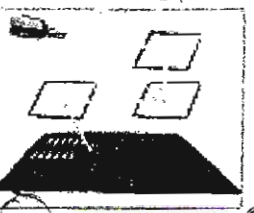
1. Sales & customer service



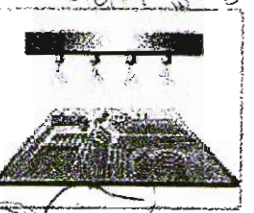
2. Engineering *check-in*



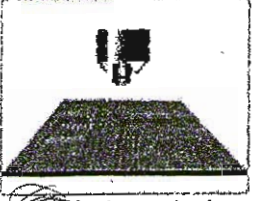
3. CAM *Edit data to
with board*



4. Photo Plotting *layers come out
develop: p1 or film*



5. Develop, Etch, Strip layers



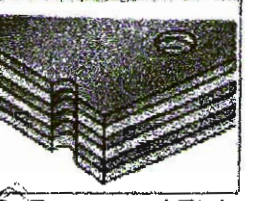
6. Automated Optical Inspection



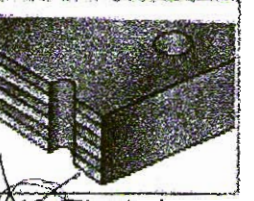
7. Lamination *Process of pushing
layers together*



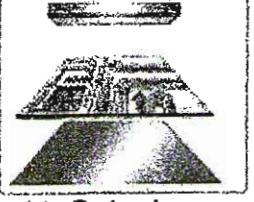
8. Drilling



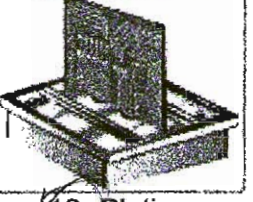
9. Desmear / Etch Back



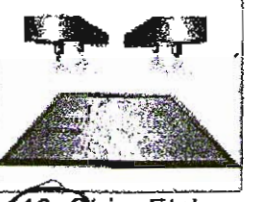
10. Electroless Copper



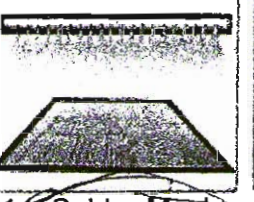
11. Outer Layer Processing



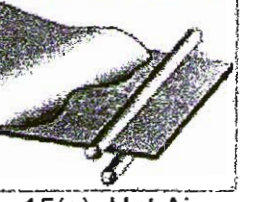
12. Plating



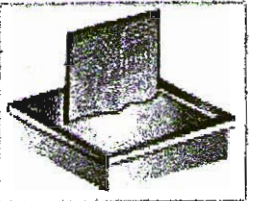
13. Strip, Etch, Strip Tin



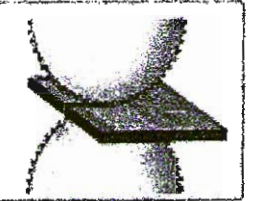
14. Solder Mask Legend & Carbon Ink Key Pads



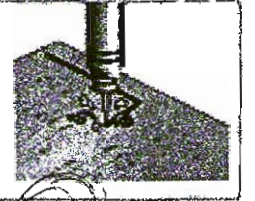
15(a). Hot Air Solder Leveling



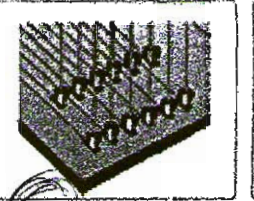
15(b). Immersion Gold



16. Scoring



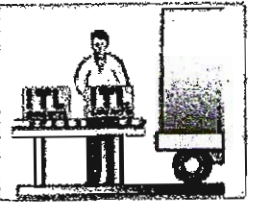
17. NC Rout



18. Electrical Testing



19. Final Inspection



20. Pack and Ship

sk

"FLYING LEAD"

Not List Testing

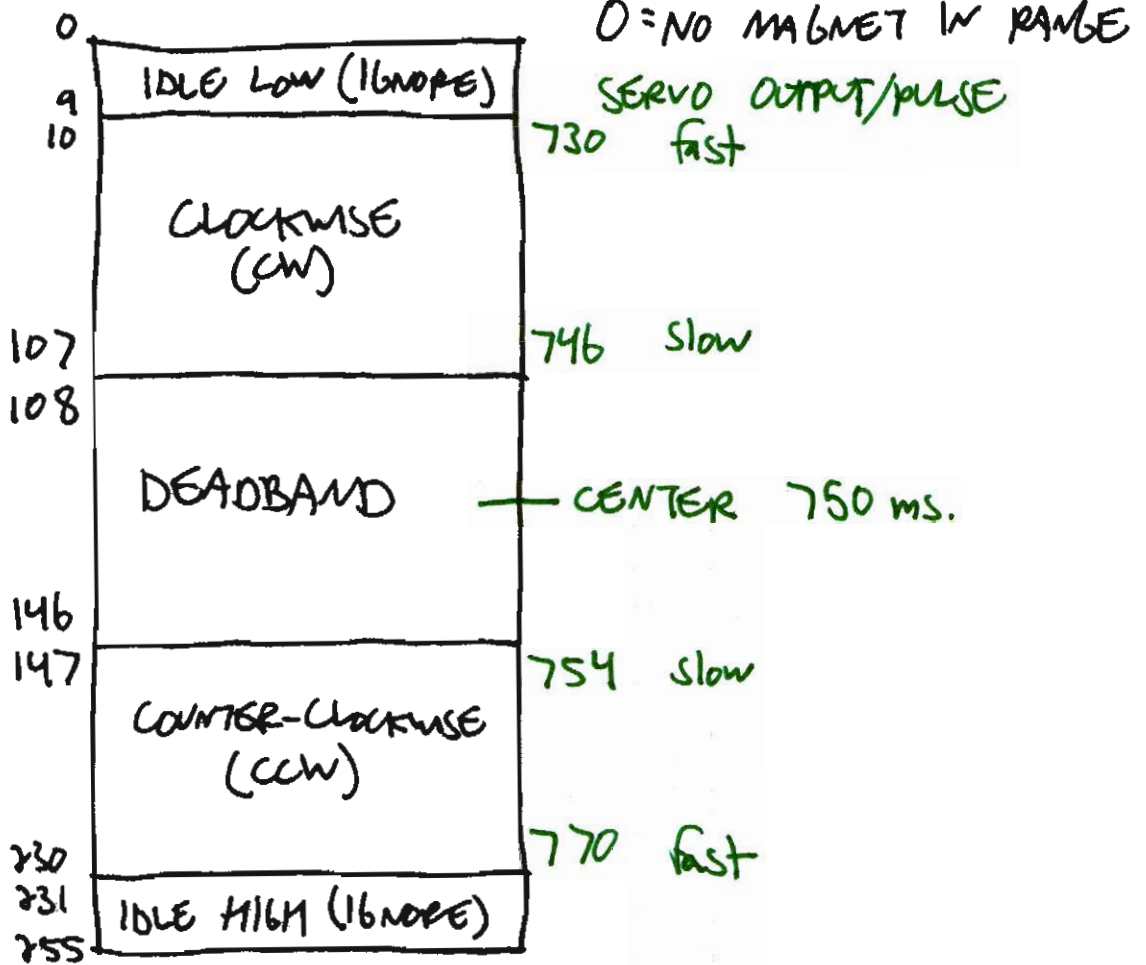
SEA CAVE / GK1-A-SKETCH DEMO

9/19/08

WIMB MELEXTIS MLX90333

PARALLAX CONTINUOUS ROTATION SERVO

RAW A/D (OUT1=X, OUT2=Y) = 0 → 255



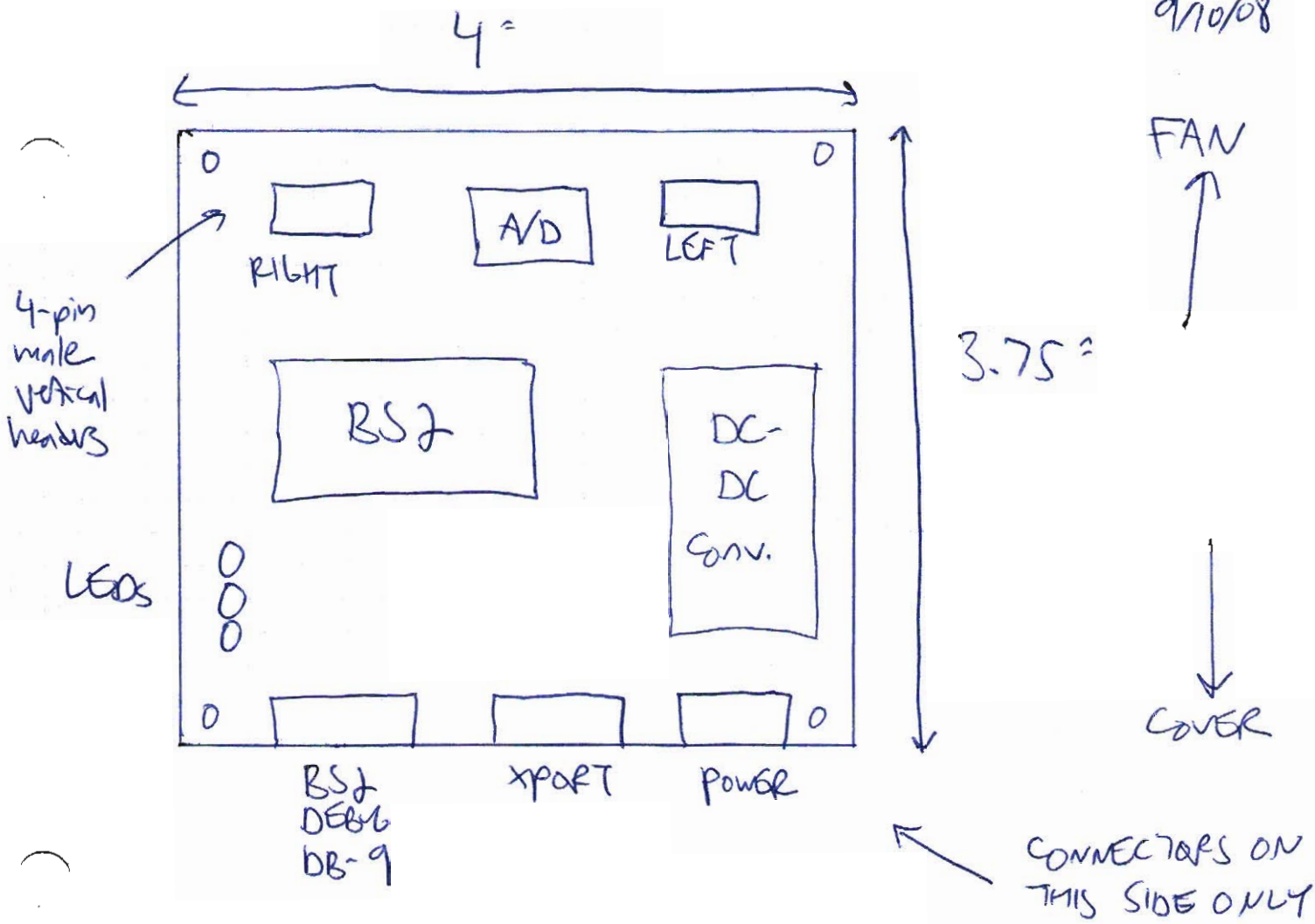
SCALING:

RAW	OUT
10	730
107	746
-10	0
97	16
	-730

$$(RAW - 10) \times \frac{97}{16} + 730 = OUT$$

$$\approx (RAW - 10) \times 6 + 730 = OUT$$

9/10/08

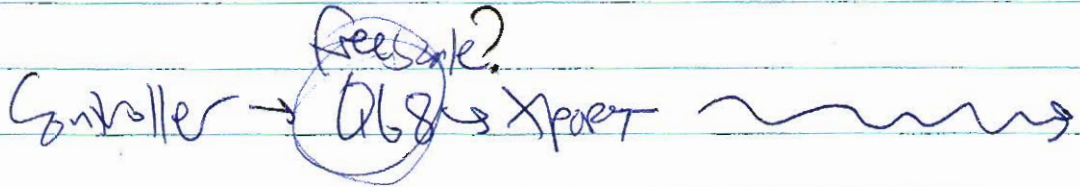


SEACAVE CONTROL UNIT INITIAL MECHANICAL OUTLINE

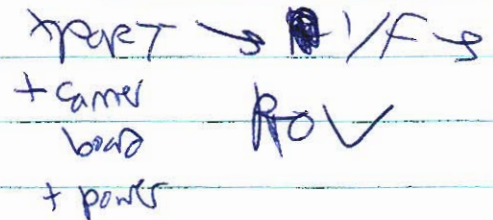
- FITS INSIDE WATER-TIGHT BATTERY COMPARTMENT OF "XTRACER" SEA SCOOTER
- POT EVERYTHING FOR WATERPROOFING?
- TOP SILKSCREEN ONLY

Sept. 19-28

Analog



|



Melexis MLX90333 KDC
Triaxis J45702 position sensor
SOIC8 - serial output
5V, SPI
slow-write OK

- SOIC8 → DIP8 camera board