Comments/ Calculations:

Astable 555 Timer

$$t_{HIGH} = 0.693\ x\ C_2\ x\ (R_2 + R_3)$$

$$t_{LOW} = 0.693\ x\ C_2\ x\ R_3$$

$$T = t_{HIGH} + t_{LOW}$$

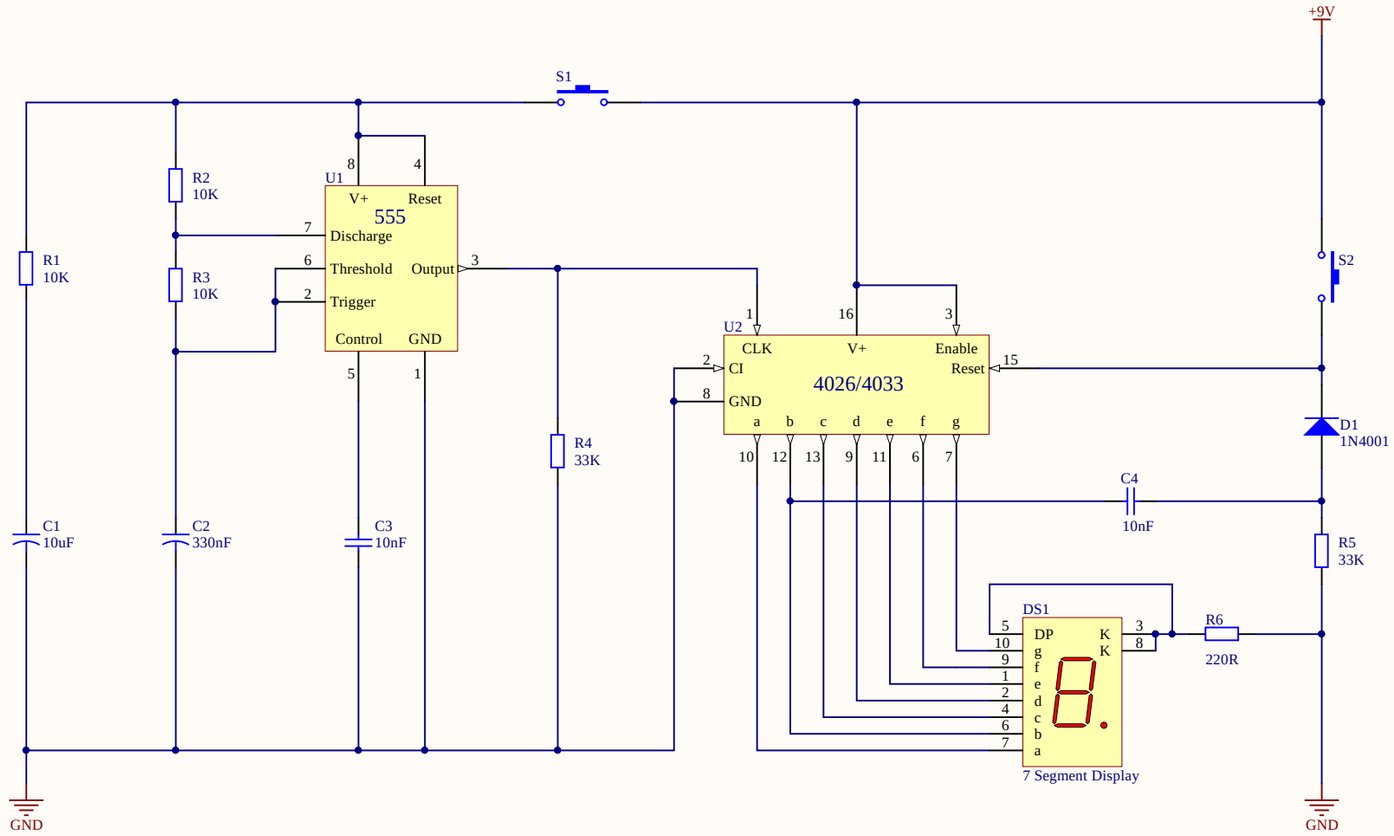
$$Frequency = \frac{1}{(T)} = \frac{1.44}{((R_2 + 2R_3)C_2)}$$

$$Duty\ Cycle = \frac{(R_2 + R_3)}{(R_2 + 2R_3)} x\ 100$$

C = Capacitance in Farads
R = Resistance in Ohms
T = Time in Seconds
t = Time in Seconds
Frequency = Hertz
Duty Cycle = %

R2 =
R3 =
C2 =

Schematic Circuit Diagram:



Data Sheets:

555 Timer:
Texas Instruments LM55CN/NOPB
http://www.ti.com/lit/ds/symlink/lm555.pdf

4026/4033:
Texas Instruments CD4026BE / CD4033BE
http://www.ti.com/lit/ds/symlink/cd4026b.pdf

Title:	***Worldskills Pre-Competition Task***		*Technical Appreniticeship Program* *The University Of Manchester* *Oxford Road* *M13 9PL* *Tel: 0161 306 6000*
Drawn By: Kerris Boulton		Size: A3	Revision: v1.1.0
Date: 22/05/2018	Time: 09:31:28		Sheet: 1 of 1
FR: N/A	Job No: N/A		File: F:\Kerris Worldskills\CompetitionTask\Figure1.SchDoc

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Component list

Worldskills Pre-Competition Task

Job No:	**N/A**	**Worldskills Pre-Comp Task.PrjPcb**	
Filing Referance:	**N/A**	**Figure1.BomDoc**	
Revision:	**v1.1.0**	**Kerris Boulton**	
Print Date:	22-May-18	9:31:40 AM	

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#	Designator	Comment	DesignItemId	Supplier 1	Supplier Part Number 1	Manufacturer 1	Manufacturer Part Number 1	Quantity
1	C1	10uF	Cap2	Farnell	9451382	Multicomp	MCGPR50V106M5X11	1
2	C2	330nF	Cap2	Farnell	1902922	Multicomp	MCRH50V334M5X11	1
3	C3, C4	10nF	Cap	Farnell	1216435	Multicomp	MCRR25103X7RK0050	2
4	D1	1N4001	Diode 1N4001	Farnell	2323100	ON Semiconductor / Fairchild	1N4001	1
5	DS1	7 Segment Display	Dpy Red-CC	Farnell	2314249	Kingbright	SC56-11SURKWA	1
6	R1, R2, R3	10K	Res2	Farnell	2329855	TE Connectivity	LR0204F10K	3
7	R4, R5	33K	Res2	Farnell	2329922	TE Connectivity	LR0204F33K	2
8	R6	220R	Res2	Farnell	2329900	TE Connectivity	LR0204F220R	1
9	S1, S2	SW-PB	SW-PB	Farnell	2468761	TE Connectivity	1825910-7	2
10	U1	555	555 TIMER	Farnell	1564692	TI National Semiconductor	LM555CN/NOPB	1
11	U2	4026/4033	4026/4033	Farnell	1703295	Texas Instruments	CD4026BE	1
Notes								**16**