

Weighted Decision Matrix - Which submarine design?

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Alternatives		3D printed submarine/boat hybrid	Upgrade an RC submarine to float	RC Boat w/ water collecting hatch
Criteria	Wt.	1	2	3
Acceptable complexity	3.0	1	3	2
Cost	3.0	1	2	5
Speed	4.0	4	4	5
Diving speed	4.0	4	2	5
Time to build	3.0	2	4	2
Programming difficulty	3.0	3	3	2
Reliability	5.0	4	4	4
Chances on winning	5.0	5	4	4
Weighted Scores		98.0	100.0	113.0

What Submarine design should team 9 pursue?

Criteria	Definition
Acceptable complexity	Is simple enough for mechanical engineering students to make
Cost	Needs to be below \$100
Speed	How quickly can it get across the pool
Diving Speed	How quickly can it dive to the floor
Time to build	Needs to be built in under 4 weeks
Programming difficulty	Needs to be simple enough for novice programmers
Reliability	Needs to work the same every time without breaking
Chances on winning	How likely is this design to win?
Note on calculation The formula for weighted scores uses a Sumproduct formula and has conditional formatting applied. Please check that the formula and conditional formatting includes the correct cell ranges if you add or remove any rows or columns.	

Instructions: Weight each criteria on a relative scale (largest value is most important). Score each alternative on its performance in each criteria (largest value is best performance). A score from 1 to 5 has been used in this example. The score will be multiplied by the weight to arrive at the total weighted score.

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