Research skills: WORKSHEET

PROJECT NAME:	Autonomous car. Team name: REVO
Project team names	**Illia Guzerya, Anton Bucataru, Obidkhon Akhmadkhonov, Oleh Bielous**

Add your goal to the following worksheet. Then, write SMART objectives.
Note: You may have fewer than 5 objectives. If you have more than 5 objectives, please copy and paste the table.

GOAL **Write your project goal in the space provided**
Win The Race

OBJECTIVE 1: **Write your first objective in the space provided**	Optimize speed management	
ASSESSEMENT by a classmate Assess how SMART the objective is. Write your assessment in the space provided. Do not simply write "yes"! Explain why you think the objective is or is not SMART	**SPECIFIC:** Who? What? When? Where? Why? Which?	The engineering team will focus on adjusting the car's aerodynamics, motor efficiency, and weight distribution.
	MEASURABLE: Metrics and milestones. How much? What %?	We will compare the results of our car during testing and the results of the winner from the previous year Race at Saxion. And gradually will try to reach to that level or overcome it
	ACHIEVABLE: Do you have the skills and tools to accomplish this objective?	With the available expertise and equipment, incremental improvements are within the team's capabilities.
	RELEVANT: Does it fit with overall organizational objectives?	Speed is a critical factor in winning the race, making this objective directly connected with the overall goal.
	TIME-BOUND: Intermediate and final deadline	To reach the desired speed one week before the final deadline, we will start improving the speed at the middle of the Q4

OBJECTIVE 2: **Write your second objective in the space provided**	Develop and refine line-tracking/object-avoidance system	
ASSESSEMENT by a classmate Assess how SMART the objective is. Write your assessment in the space provided. Do not simply write "yes" Explain why you think the objective is or is not SMART!	**SPECIFIC:** Who? What? When? Where? Why? Which?	The software development team will create and fine-tune an algorithm for the car to follow the line and avoid static objects.
	MEASURABLE: Metrics and milestones. How much? What %?	Weekly tests, gradually improving system performance to reach minimum 85%-90% of accuracy of input and defining well structured algorithm.
	ACHIEVABLE: Do you have the skills and tools to accomplish this objective?	The team has the technical skills to develop and program the necessary software from Saxion University classes along with personal experience in programming.
	RELEVANT: Does it fit with overall organizational objectives?	Precision in following the track and avoiding static object is essential in the list of requirements, and for precise movement to win the race.
	TIME-BOUND: Intermediate and final deadline	Reach the desired accuracy rate and stability at least one week before the race.

	OBJECTIVE 3: Write your third objective in the space provided	Develop structured, highly factored software code.
ASSESSEMENT by a classmate Assess how SMART the objective is. Write your assessment in the space provided. Do not simply write "yes" Explain why you think the objective is or is not SMART!	**SPECIFIC:** Who? What? When? Where? Why? Which?	The software development team will have to follow defined programming rules and techniques to obtain given style.
	MEASURABLE: Metrics and milestones. How much? What %?	This code has to be divided into independent parts, each performing their delegated task. Such a style will help us to form a good structure of main algorithm and will be easy to maintain, as integration of these parts into each other is minimized.
	ACHIEVABLE: Do you have the skills and tools to accomplish this objective?	The software team has obtained needed knowledge on different styles of programming during first 2 quarters of studying in Saxion. Additional internet sources and knowledge will be used to sharpen this skill and follow the style properly.
	RELEVANT: Does it fit with overall organizational objectives?	Of course, because our team solely consists of Computer Scientists and it is our main interest to perform on the software part. Also, this is an inevitable part for the autonomous car to have well structured code, because it's computing power is highly restricted by the hardware, we can't afford writing slow not optimized code.
	TIME-BOUND: Intermediate and final deadline	Reach the desired computing performance and structure of software part at least one week before the race to have extra time for testing.

List the sources you used in the project plan and technical report here using APA or IEEE format:

Are you using APA or IEEE?

REFERENCE LIST, IEEE style.

[1] "Battery energy consumption calculator." Accessed: Apr. 11, 2024. [Online]. Available: http://lculator.com/other/battery-life

[2] D. Lee, "Velocity-time graphs," Online Learning College. Accessed: Apr. 11, 2024. [Online]. Available: https://online-learning-college.com/knowledge-hub/gcses/gcse-maths-help/velocity-time-graphs/

[3] "System Architecture for Autonomous Vehicles." Accessed: Apr. 11, 2024. [Online]. Available: https://encyclopedia.pub/entry/8473

[4] "3D Model of car parts." Accessed: Apr. 11, 2024. [Online]. Available: http://www.mjxrc.net/goodshow/14210-14210.html

[5] Pololu Corporation, "QTR-8A and QTR-8RC Reflectance Sensor Array User's Guide." 2014. Accessed: Apr. 11, 2024. [Online]. Available: https://www.pololu.com/docs/pdf/0J12/QTR-8x.pdf

[6] Sparkfun, "Ultrasonic Ranging Module HC - SR04 datasheet." Sparkfun. Accessed: Apr. 11, 2024. [Online]. Available: https://cdn.sparkfun.com/datasheets/Sensors/Proximity/HCSR04.pdf

[7] "Rc 540 motor datasheet." Accessed: Apr. 11, 2024. [Online]. Available:
https://asset.conrad.com/media10/add/160267/c1/-/en/001385115DS01/adatlap-1385115-540-es-motor-reely-532114c.pdf

[8] "Programming | Arduino Documentation." Accessed: Apr. 11, 2024. [Online]. Available:
https://docs.arduino.cc/programming/

[9] "Line Follower Robot (with PID controller)," projecthub.arduino.cc.
https://projecthub.arduino.cc/anova9347/line-follower-robot-with-pid-controller-01813f

[10] InvenSense Inc., "MPU-6000 and MPU-6050 Product Specification Revision 3.4 MPU-6000/MPU-6050 Product Specification," Aug. 2013.
Available: https://invensense.tdk.com/wp-content/uploads/2015/02/MPU-6000-Datasheet1.pdf