

Somerset Berkley Regional High School

Robotics Engineering with LabView

Objective: To support the development of metacognitive skills and habits of reflection for effective problem solving

Planning ; What should step one be? What do I know about the problem?

Goal setting Set realistic goals. How much time do I have?

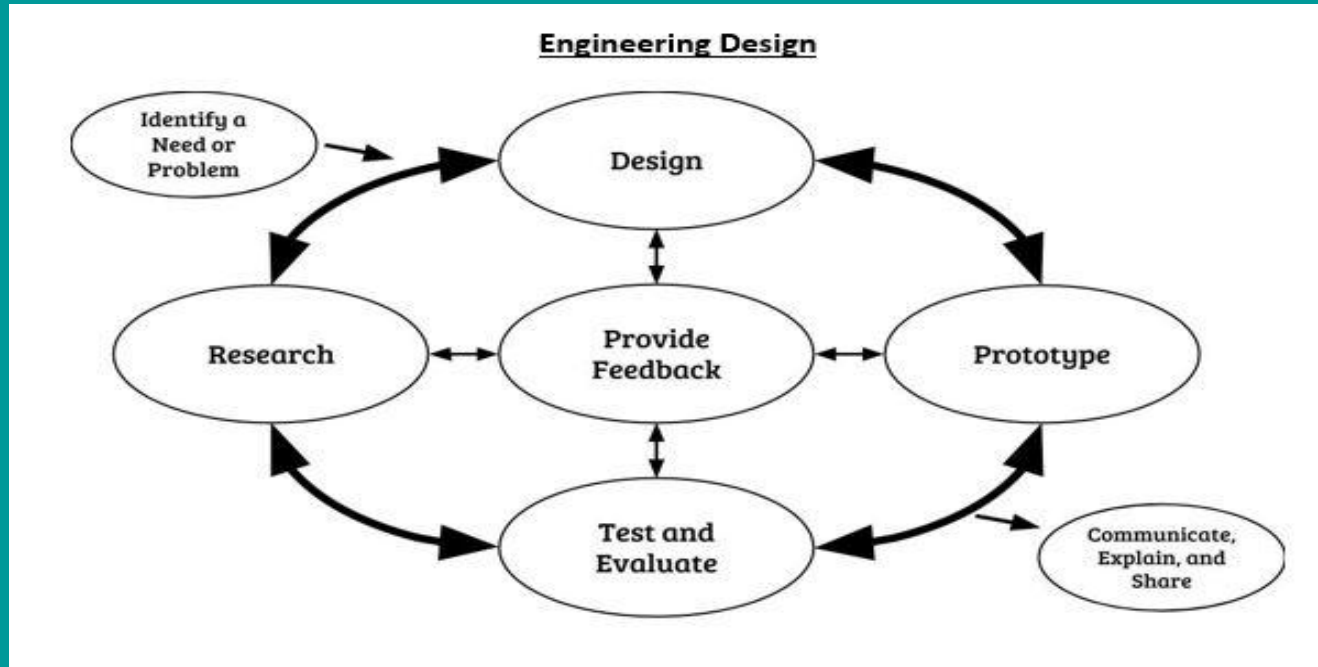
Monitoring progress Am I on the right track?

**Adjusting What did I learn. Did I get the results I was expecting?
If I could do this over again I would.....**

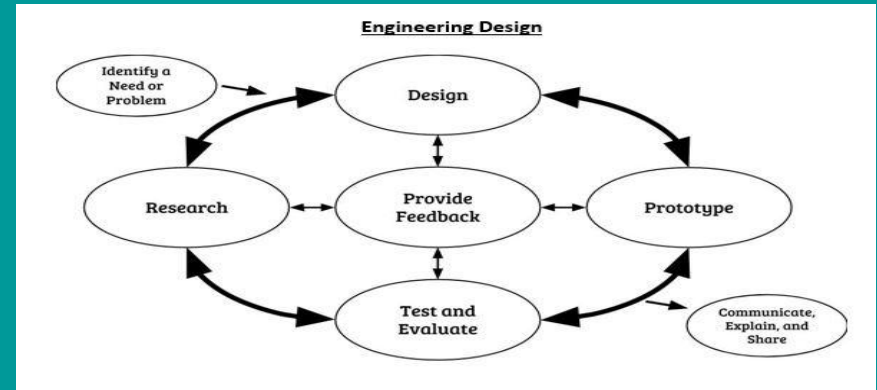
Standard 1.1

Engineering Design Process

2016 Revised Massachusetts State Framework



Identify the need or problem

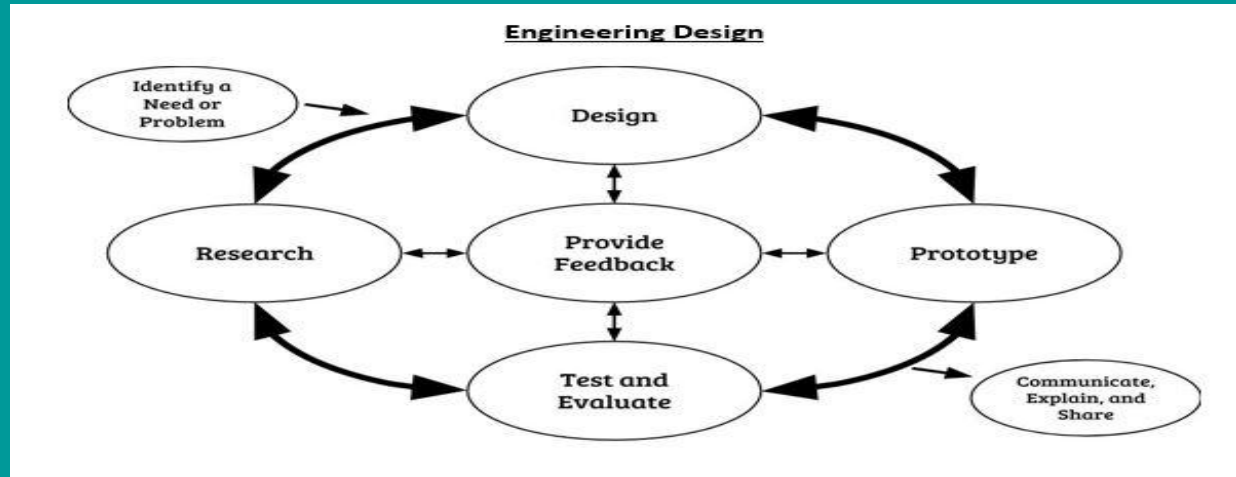


Identify a need or a problem. To begin engineering design, a need or problem must be identified that an attempt can be made to solve, improve and/or fix. . This typically includes articulation of criteria and constraints that will define a successful solution.

Evidence : Add slide and describe what you already know about the problem. This helps to build an understanding of the problem
Describe the knowledge you will need to solve this problem.

- Design, build, and program a robot to travel a specified distance.
- Know how far we have to drive and how much we need to carry
- how big the gap is between two tables
- when to stop and turn the robot
- solve different tasks like opening a lock
- we will need to know all this

Research the problem



Research. Research is done to learn more about the identified need or problem and potential solution strategies.

Decide what information is needed.

What should step one be?

Use appropriate tools and strategies to access the information

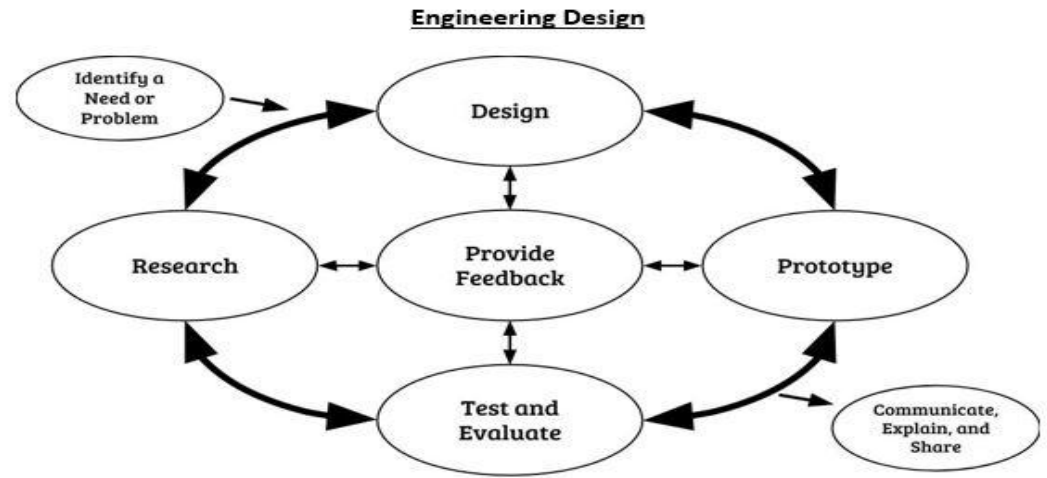
Analyze the information gathered and its sources.

If there is more than one good answer to the problem,
list the positives and negatives of each of the findings.

On your PowerPoint file show what you did for research. *evidence

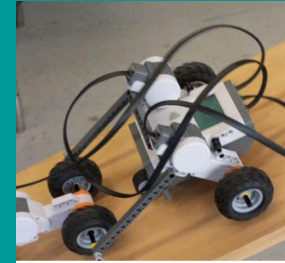
- To complete this task we need to
- Know how far we have to drive and how much the robot is carrying
- How much the legos weigh
- How many turns of the wheel you need to get to a certain distance
- How to tell the robot when it hits something it stops turns the other way and goes around the object

Prototype

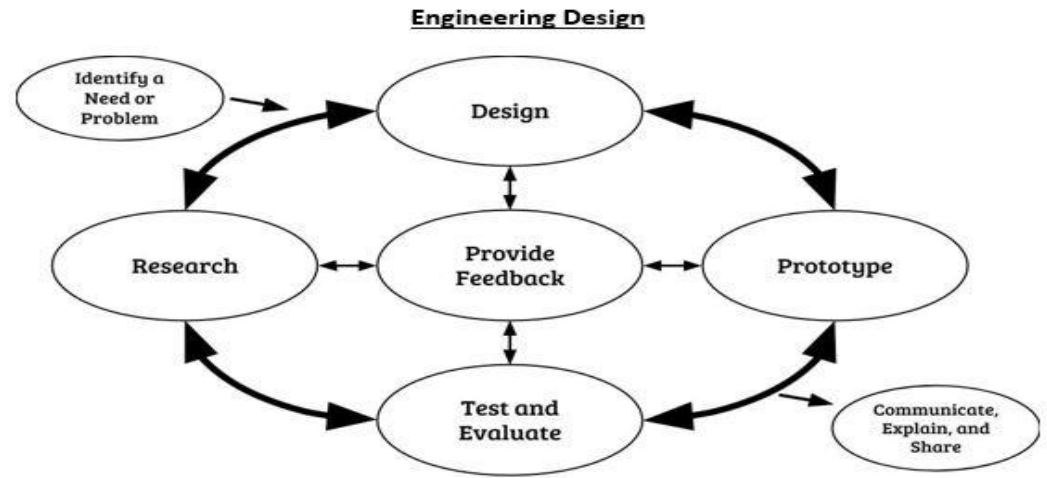


A prototype is constructed based on the design model(s) and used to test the proposed solution. A prototype can be a physical, computer, mathematical, or conceptual instantiation of the model that can be manipulated and tested.

Evidence : Execute the plan, (build your robot) modifying as needed.



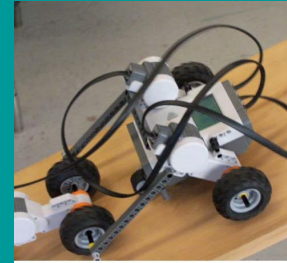
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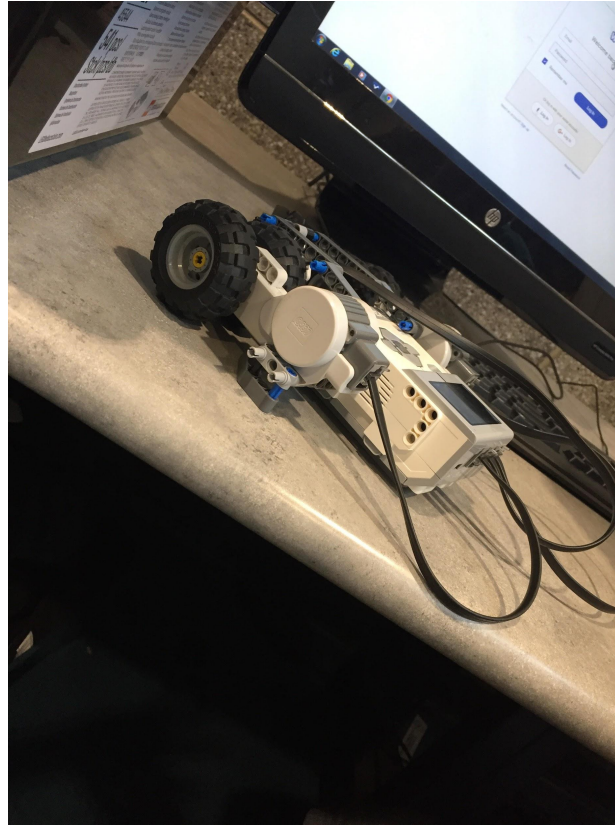
Step 5 evidence

1st Prototype picture and computer program



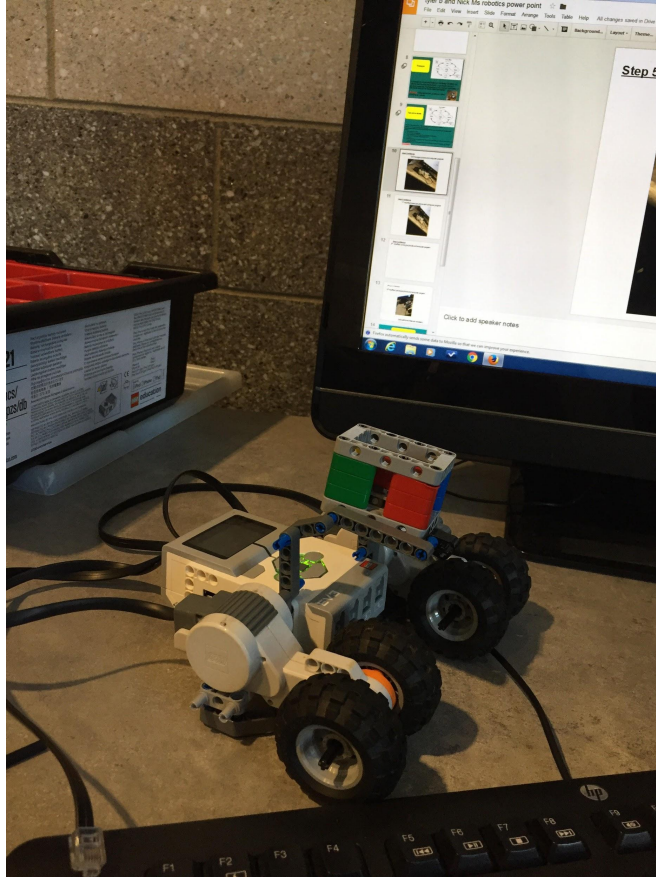
Step 6 evidence

1st modified prototype picture and computer program



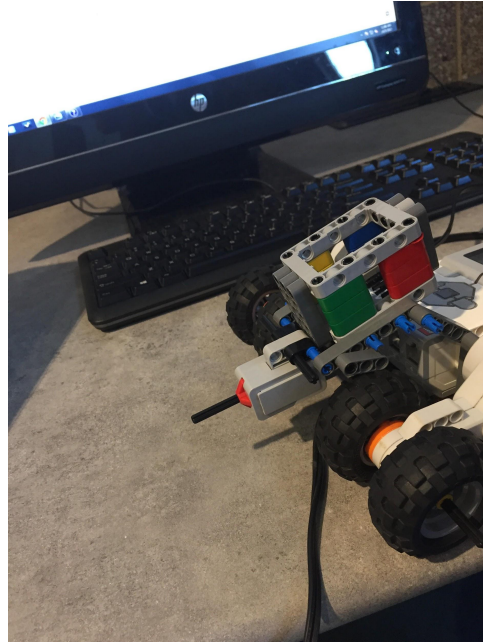
Step 6 evidence

2nd modified prototype picture and computer program



Step 6 evidence

3rd modified prototype picture and computer program



Add additional slides as necessary

Reflection

Think about your professional destination. What skills and or knowledge are you going to need that you don't have or have enough of. Add a slide and make a list
Reflect on your latest assignment in robotics and describe how what you just did supports what is on your list.

Letter to a future student

Take a few minutes to think of a time when you overcame a struggle in robotics class.

Reflect on the times when you failed at first but through persevering your brain created new neural connections and you eventually became better at the task at hand. Briefly describe this experience in a letter to a future robotics student.

Letter To A Future Student

This a letter to a future student in robotics. I hope in the future there is better technology to build a robot. To become a better robotics student u would have to pay attention to the teacher and stay on task. I did not do that for the first assignment and i had to catch up on the last day to get in all my work done on the last day. Also know how to do Lab View. The last thing that you should be able to do is to be creative. It is the best tool in this class. If you have a good imagination u will pass the class with ease. I don't have a good imagination and i hope throughout the year a can get a better imagination to build robotic and other stuff in life. Hope you have fun in Robotics class.

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