



2021 NJ TSA MIDDLE SCHOOL DESIGN PROBLEMS

Coding

The COVID-19 pandemic has been tough on all of us. Small businesses, including independently owned restaurants, have been particularly hard hit. Many have already closed, and it is estimated that an additional 50% of the small businesses in New Jersey that are currently open, may have to close. Fortunately, some businesses can serve as models because they have been successful in encouraging online ordering to replace in-person sales.

APP DESIGN CHALLENGE

Conduct research to find examples of small businesses that have successfully shifted a large percentage of their overall business to online sales. Try to identify strategies that are helping them survive and thrive. Then, choose a small, local business that you think will benefit from having an app because it does not currently have one. After selecting the business, gather information about key details (address, phone number, owner, staff, photo, etc.) as well as some of the important products and/or services that will be the focus of your app.

- PLATFORM: The app can be on any platform.
- PROGRAMMING LANGUAGE: Use any programming language.
- FUNCTIONALITY: The app must have some degree of functionality.
- CONTENT SUITABILITY: All content must be in good taste and observe all school rules.
- ORIGINALITY: The app must be original in design and content.
- VIDEO: Create a 1-3 minute video that contains the following information:
 - First name of each team member
 - The name of the app
 - Clearly explain the purpose of the app
 - The tools and coding language used to create the app
 - Show how the app works
- IN ADDITION submit a document that includes the following information:
 - Your ID number(s)
 - Title of the app
 - Explain the app in ONE sentence.
 - What is your app trying to accomplish? (200 characters max.)
 - What technical /coding difficulty did you face in programming your app, and how did you address this technical challenge? (250 characters max.)
 - With what you've learned, what improvements would you make to version 2.0 of your app? (250 characters max.)

EVALUATION

- VIDEO (50 points)
 - The purpose of the app is explained (10 points)
 - Tools and coding language are explained (10 points)
 - At least 3 features of the app are demonstrated and explained (30 points)
- DOCUMENTATION (50 points)
 - Written description of the app's purpose (10 points)
 - Technical difficulty and solution are explained (20 points)
 - Improvements that should be included in version 2.0 are explained (20 points)

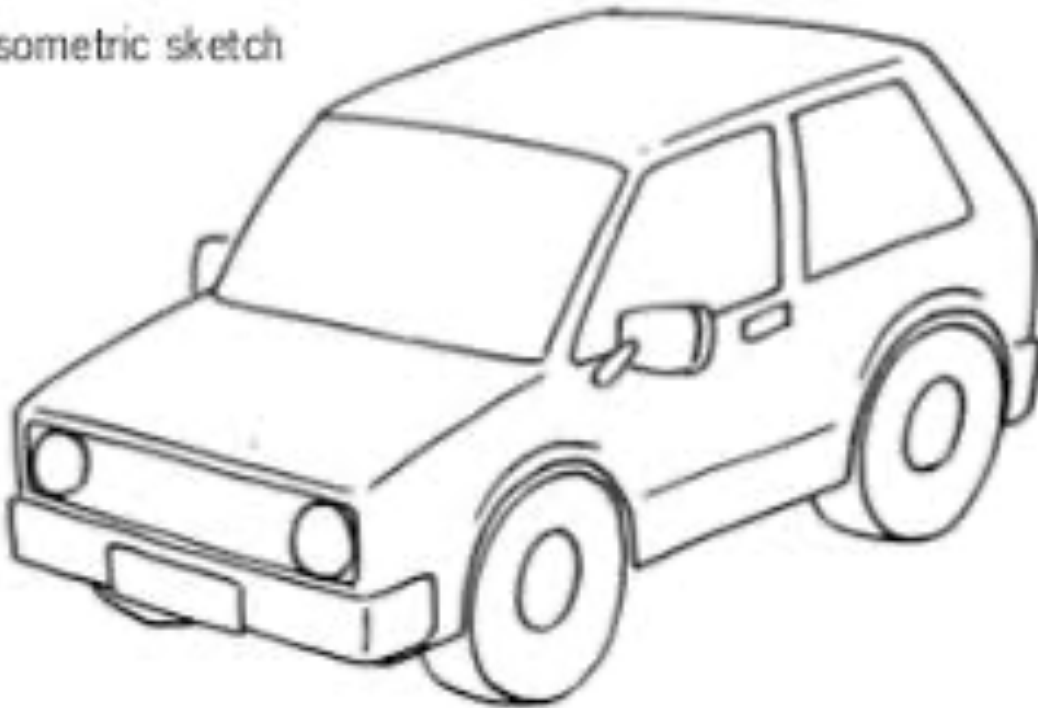
SUBMISSION INSTRUCTIONS

- The URL for the video (posted on YouTube) should be emailed to tsachall@tcnj.edu by March 29, 2021. Required documentation must be submitted as a PDF attachment to the email.
- Include ID number(s) and "Coding" in subject line of email.

Computer-Aided Design (CAD) Foundations

Use CAD to produce isometric and 3-view (orthographic) drawings of the automobile illustrated below. Choose an appropriate scale so that you can print the drawings on a single page. Include a border, title block with the event name (CAD Foundations), ID number, and drawing scale. Shading and color are optional and may be used on the isometric drawing. Follow directions in the NJ TSA Supplement to submit your drawing.

isometric sketch



shading and colour