

## Design Brief

**School:** Chiawana High School      **Center:** Yakima Valley/Tri-Cities

**State:** Washington

**Division:** High School

**Team Members' Names:** **Juan Galvan, Alex Avalos, Marcelo Hernandez**

<p><b><u>Project Title:</u></b> Readers should have a glimpse at what the project is about and want to read more. <i>(25 word maximum)</i></p>
<p>JAM: A Multilingual Electronic Traffic Sign</p>
<p><b><u>Project Purpose:</u></b> In one or two sentences explain what this project intends to do. The issue must be community centered. <i>(50 word maximum)</i></p>
<p>Our project intends to address the inequity non-English speakers face by displaying messages on electronic traffic signs in different languages to ensure all drivers are informed of emergency and road updates in our community.</p>
<p><b><u>Abstract:</u></b> Briefly describe the people/community who will benefit from the project and the challenges they face. Include any inequity that the project hopes to address. <i>(200 word maximum)</i></p>
<p>Traffic signs in our community are currently displayed in English only creating an inequity for people that cannot read in English. Any non-English speaking individuals can benefit from this project because the signs will display the most common languages in our community such as Spanish and Russian, along with images for those that are illiterate. In our school district, there are over 65% of students that either do not speak or communicate well in English. In addition, about 18.7% of people in the US are Latinos, potentially making the amount of people on the road who can't read in English, dangerously high. There are also 32 million adults in the US who just can't read in general, our signs would also be able to display images to help them.</p>

**User Research:** Discuss key information about the users gathered through your research, interviews, and ongoing discussion with the user throughout the project. What did you learn about the user and the barriers they face? *(200 word maximum)*

About 18.7 percent of people in the US are Latinos making the chance of the amount of people on the road who can't read in English, dangerously high. There are also 32 million adults in the US who just can't read in general, our signs would also be able to display images to help with this. In our school district, there are over 65% of students that either do not speak or communicate well in English. We learned that our users thought our idea would be helpful and that the only barrier they could potentially see was the message on the sign not being big enough or changing too fast.

**User Insight:** Discuss your team's understanding of the experiences, emotions, and motivations of the users. This insight should inform the rest of the project and help the reader have a deeper understanding of the inequity of the user. What did you learn about how the barriers affect the user? *(200 word maximum)*

Our initial draw to creating this prototype was to provide solutions for those close to us. One of our team's family members is non-English speaking and cannot read local traffic signs. Our users felt happy and excited for our prototype, and they were motivated to help in any way they could. Their excitement quickly faded when we told them our design would not be on the roads. They look forward to knowing that people in the community are thinking about them and wanting to provide solutions.

**User Needs:** Develop a specific list of the user's needs produced from the user insight. What does the user want to help them with the barrier? *(100 word maximum)*

- Keeping words on the sign long enough so they are readable
- Clear and large words that are readable
- Images to help understand the information that is being shared
- Not distracting

**Project Goals:** List project goals and describe how they are linked to and will adequately meet the user's needs and address inequities and/or barriers faced by the user. What do you want the project to do to help the user? *(100 word maximum)*

Our project's goals are to satisfy all these needs by 1) changing between languages every two seconds to make sure the words are readable; 2) making the fonts big so people can read them from far away; 3) images to help visualize info for those who cannot read; 4) making it non-distracting to drivers for safety.

**Key Features of Design:** List key features, illustrating that the design will adequately meet project goals. How will the project help the user? (200 word maximum)

One key feature of our design is the LCD screen will alternate between languages. We also used an ultrasonic sensor to detect when cars are coming to activate the sign. This will help the user by letting them see the sign in different languages.

**Impact:** Discuss how design addresses inequities for the user and/or removes barriers. Input from users should be included. Does the project help the user? How? (200 word maximum)

Our design makes all the goals we had set for ourselves possible. A user who had previously given us the advice to make the text go slower was beyond impressed when we showed him the updated prototype. Our prototype meets the user's needs by being able to display messages in different languages and showing those messages for a long enough time so that everyone would be able to read it. This makes sure that everyone in our community is aware of any emergency or safety update.

**Status of Project:** Describe the current status of the project, including feedback from users, and discuss potential next steps. What does the project do now? What would you like to work on in the future? (200 word maximum)

At this point in time, our project prototype shows a message in multiple languages when the sensor detects an object close by. If we could continue the project, we would improve our code and our ultrasonic sensor distance that it can detect. Aside from that, all the feedback we have gotten from potential users has been good.

**Reflection:** Show that the team has an increased understanding of human-centered design. Examples of personal growth and insights gained about designing for others and helping them overcome challenges should also be included. What did you learn during this project? (200 word maximum)

Our team had to understand how our target user, such as our team member's mom, would feel not being able to read and understand important local traffic signs and having to rely on others. One of our team members always must translate for his mom but worries when he is not around.

**Prototype Graphic:** A **single** graphic with key features adequately labeled. It should be easy to understand, and the reader should have a general understanding of how the prototype functions by looking at the graphic.

