

Design Proposal Template:

School: Centennial High School State: New Mexico

Division:

Middle School

High School

Team Members' Names: Yulei Shu, Victoria Sohn

Project Title: Should be creative and give readers a general sense of what the project is about and want to read more. (20 word maximum)

EJECTON: *“Eject” yourself from any situation; help is just one press away!*

Community Challenge Being Addressed: Describe the community challenge that you will attempt to address with your proposed solution. (75 word maximum)

In New Mexico, it is estimated that nearly 50% of all elderly individuals live alone. In time-sensitive medical emergencies, they face great risk of serious injury and death due to lack of sufficiently quick aid. In such emergencies, individuals' physical strength may be hindered, causing difficulty in contacting others for aid. EJECTON offers a means for quick aid through distress signals sent by a button large enough to be pressed with ease.

Community Research and User Identification: Explain the process used to identify the community challenge and select your user. Include any research done to identify issues in your community and understand which groups face challenges because of these issues. (150 word maximum)

The safety risk for isolated, elderly individuals was brought to our attention through anecdotes of local firefighters as well as personal accounts of elderly family members who lived alone facing medical emergencies when help was not nearby. We thus realized that the risk of elderly individuals experiencing urgent situations without prompt aid was a prominent issue that many worried about and experienced in our community. We identified the safety risk for isolated, elderly people through in-person surveys in which approximately 85% of our interviewees, all individuals 65 years old and above that claim to live alone, expressed active concern about experiencing a medical emergency without the ability to contact somebody for help, with some sharing personal anecdotes of this very issue. Based upon our research, we identified isolated, elderly individuals as our primary users.

User Profile: Provide a detailed description of your selected user. Include information about challenges they face, how those challenges impact their lives, and specific project needs based on user feedback. (150 word maximum)

Our users are primarily elderly individuals that live alone. Through interviews, we've learned of the dangers that arise alongside medical emergencies when living alone. In urgent situations, it can be difficult for these individuals to ask for help over the phone. This was a prominent concern amongst many of the people we surveyed. Additionally, when asked what factors they preferred in a communication device, 90% of our interviewees prioritized accessible, simple, large designs most. "I have tremors in my hands... An alert device that'd be good for me is a button that's big so that I can press it even with my shaky fingers... but nothing too complicated— I still don't know what most of the things in my phone do." This device can also be useful for others outside of our primary audience of users, such as individuals with chronic pain or children without phones.

Project Goals: List your project goals and explain how these goals will address the community challenge. Project goals should define the desired outcomes, not specific features of the proposed solution. (150 word maximum)

EJECTON's goals are to ensure safety amongst elders:

Ease in Receiving Aid

- *Create a simple button that, when activated, sends a distress message to a user-selected emergency contact*
- *Allow the distress message to be customized by the user*
- *Aid the emergency contact in locating the user by sending them the user's current location when the button is activated*

Accessibility-Friendly Design

- *A large button to allow individuals with limited dexterity to press with any body part rather than just their fingers*
- *Friction employed by the device through a felt coating that both eases the user's ability to maintain hold of it and reduces the possibility of the device sliding away if the user grasps at it on a smooth surface*
- *A vivid red appearance to aid individuals with visual impairments in locating the device*

Proposed Solution: Describe your proposed solution, including any innovative and unique features, and explain how this solution will address your users' needs and the challenges they face. (150 word maximum)

The EJECTON is an emergency button system that sends a user-customized distress notification and the user's current location to an emergency contact's phone through a mobile app whose app interface we created through Blynk. The EJECTON is large, bright, and simple. Its dimensions measure up to around 6" x 4" x 2.5" and it features a large button that allows people with limited dexterity to activate it easily with any strong body part, not limited to their fingers. Its coating is bright red to aid users in visually locating it, and the device's body is uniquely shaped to aid users in tactilely locating it. The EJECTON provides elderly individuals (and other users) a quick simple way to alert an emergency contact during urgent situations whilst easing the minds of loved ones who may worry about the dangers these individuals can face when help is not nearby.

Initial Design: A single graphic of your first design idea 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. Max size 8.5" x 11". May contain up to 4 views of the design.

