Sample Project Abstracts

Feather River College, CA
Project: Making our MARK with the EVA-I

In 2021, the Dixie Fire became the single largest wildfire in California's history and destroyed over thirteen hundred structures in our communities, half of them residential. We have seen firsthand the devastation wildfires bring. More than 46 million homes in over 70,000 communities in the United States have been built in the wildland-urban interface and are at risk of burning. The MARK-3 is a fuel-powered fire pump used in wildland firefighting that must be turned on before firefighters can evacuate due to worsening conditions. The EVA-I seeks to improve upon this design by offering a more efficient way to protect structures. The MARK-3 can quickly deplete water sources because it begins pumping water from the time it is turned on, whereas the EVA-I would be equipped with heat sensors, engaging only when they detect the heat signature of an approaching wildfire. The EVA-I would also be run by solar batteries rather than being powered by fuel, eliminating the risk of environmental contamination. The EVA-I will help protect homes and communities as well as the environment and our wildland first responders. Come visit us to learn about how the EVA-1 can be used in structure protection to help save communities.

Red Rocks Community College, CO
Project Name: w(aut)ch

According to the National Autism Association, 91% of accidental deaths for autistic children under the age of 14 are due to drowning. The w(aut)ch allows caregivers to monitor their children through the mobile application and prevents drowning and elopement through alert notifications. Caregivers can monitor location, heart rate, and submersion detection. Caregivers can set a safe radius and be notified when the child leaves that radius. The main module of the w(aut)ch can be worn on the wrist or placed on different articles of clothing with the attached magnet. The versatility allows for accommodation of a variety of sensory needs. The design process included actually autistic adults, who helped to identify the major needs of autistic people. This design prioritizes the sensory needs of autistic youth and promotes independent play and autonomy, while still giving caregivers control over their safety. The product has the potential to reduce stress for caregivers, and, most importantly, save the lives of the thousands of children under 14 with ASD who are at risk of drowning.

Woodland Community College, CA
Project: Location Emitting Emergency Ring

What would you do if your loved one went missing? As of December 31, 2021, the National Crime Information Center's database contained 93,718 active missing person records. Children under the age of 18 account for 30,400 (32%) of the national recorded 93,718, and 39,114 (42%) recorded were children under 21 years of age. According to the National Missing and Unidentified Persons System database, there are 600,000 people declared missing every year. Alongside that statistic, there are 4,400 unidentified bodies discovered every year. When someone goes missing, time is an important factor in helping locate the missing individual especially if the safety of the missing person is in jeopardy. Young

children or vulnerable adults who go missing may need medical attention as soon as possible. We never imagine that something bad will happen to our loved ones; but if it does there is the Location Emitting Emergency Ring (L.E.E.R), a wearable device that uses GPS tracking, live audio feed, and a panic switch to alert family and friends that the user might be in danger. Bring yourself and your family peace of mind with L.E.E.R., a ring that looks ordinary on the outside but functions extraordinarily on the inside.