

Pennsylvania Rural Robotics Initiative

Executive Summary

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Background

The Pennsylvania Rural Robotics Initiative (PA RRI), located in Western PA, is a non-profit that aims to enhance STEM educational programming within public schools through robotics. Its mission is to create sustainable robotics and computer science programming in Pennsylvania schools in order to adequately prepare students for a 21st century workforce. Despite having been started less than a year ago, PA RRI already serves an estimated 1,400 students across 25 school sites in 5 counties.

Project Description

Project Opportunity

Despite being a young organization, PA RRI has grown rapidly. This has led to challenges, as the organization is now so large that they do not have an understanding of how many students they are serving, the demographics of their students, and the experience of students throughout the program. It needs a system to collect this information in a manner that is easy for non-technical people to use, and can be completed swiftly by busy teachers. Because PA RRI does not have this data collected, it's hard for them to effectively apply for grants, and demonstrate that granted money is being used appropriately. In addition, the PA RRI website was quickly developed by the program's founder, and could be updated to better serve organization and community needs.

Project Vision

Our project aims to help the PA RRI collect data and survey answers about their students, teachers, and outcomes. The data collection system will allow teachers and students to enter information, and answer questions about experiences and outcomes through a highly automated process. The data collected will be used to generate reports that PA RRI staff can use as they continue to apply for grant funding and improve their program. The system will be accompanied by a website that more clearly communicates information about PA RRI to community members, partners, and potential donors, allowing PA RRI to increase their publicity. The website will also serve as a platform for the data collection system. These deliverables will provide PA RRI with a better understanding of the students that they're serving, and the impact that they're having on their community.

Project Outcomes

Our team built a data collection system that allows PA RRI teachers to fill out information, and where appropriate automatically emails students to fill out further surveys, all of which were developed by the team. The system has a data dashboard that allows PA RRI to see survey results, demographic information, and other relevant information. A redesigned, mobile-responsive Wix website was developed to better serve PA RRI's needs, communicate their value to the community, and serve as an entry point for teachers using the data collection system. The website is connected to analytics and traffic monitoring services that allow PA RRI to better understand their audience. The collection of this data, and the consolidation of PA RRI's technologies, will allow them to better understand and serve their community.

Project Deliverables

The client will receive access to the data collection system, data dashboard and sheets of data. Additionally, they will retain credentials for the maintenance and use of the website, along with the associated analytics account. A Google Drive that contains technical documentation for both the data collection system and website that will allow the organization or future developers to make updates and changes as needed has also been developed and passed on. Included in this are instructions for system use that PA RRI can send to teachers and students as applicable.

Recommendations

We recommend that the client use the data collection system consistently year-over-year in order to fully benefit from the analytics the team has provided. In addition, the client must be assertive about ensuring that individual teachers use the data collection system as requested, and make their students do the same, as the data dashboards are only as good as the quantity of data collected. Finally, PA RRI should be conscious of the importance of continually updating their website in order to better communicate the organization's successes and partnerships.

Student Consulting Team

Nicole Ang served as a developer for the data collection tool for the team. She is a senior Information Systems with an additional major in Statistics and Machine Learning. She will be working at Amazon as a software development engineer starting in September 2019.

India Unger-Harquail developed the website, and served as client liaison and project manager. She is a junior majoring in Information Systems and Social and Political History with a minor in Global Systems and Management. She will be a Product Management and Analytics Intern at Capital One this summer.

Jiayi Zhao served as a designer for the rebuilt website and a developer for the data collection tool. She is a junior in Information Systems with additional majors in Computer Science and Human-Computer Interaction. After two internships as a software engineer, she is now seeking for opportunities in business product management or management consulting.