

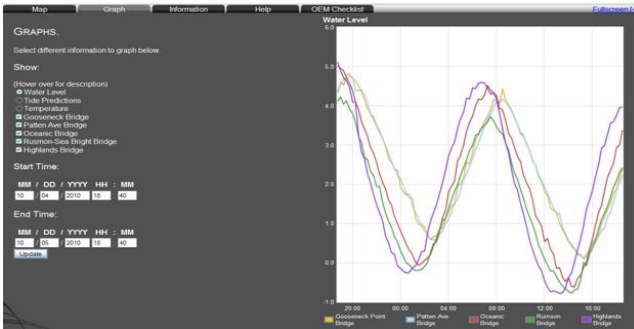


These sensors reported their readings to a system at the University.



Sensors at Gooseneck Bridge Location

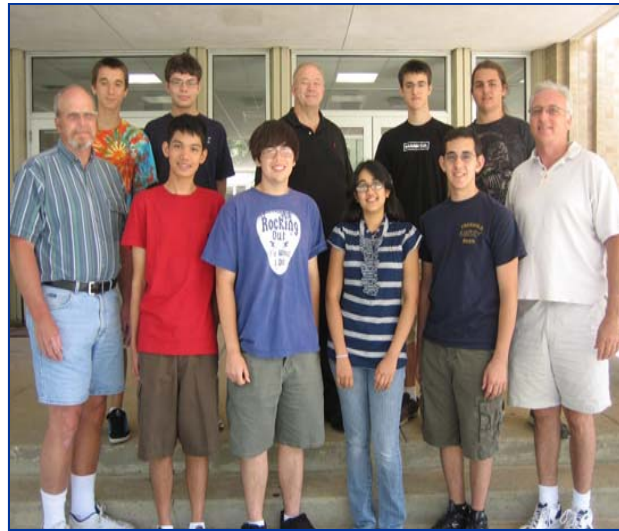
The students worked with the Shrewsbury River Flood Warning System. This is a set of sensors that provides not only valuable but crucial information for the stakeholders: the general public, emergency managers, and researchers. It helps the public to take precautionary measures, evacuate, and/or view conditions. It helps the emergency managers declare evacuation and determine evacuation routes. Finally, it helps the researcher figure out flood trends. The warning system reads the sensor values, and the Flood Detection Visualization displays the information on a user interface so those who access it can interpret the information delivered.



Clear No watch or warning	Flood Watch Possibility of flood	Flood Warning Definite flood
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The graphical aspect of the user interface ~
The colored labels advise the user about current flood conditions.

HSSRP OBJECTIVES



2010 High School Summer Research Team

During the summer of 2010, the Rapid Response Institute of Monmouth University worked with AP high school students on two projects: ER-Locator and Flood Detection Visualization. The program was intended to provide advanced training to these students in the University environment and to work in a professional collaborative team framework. This program focused on the Rapid Response Institute and its work in emergency management technologies and applied research through prototyping. It was part of a broader summer research program in the School of Science.

MISSION

Just like every real world project, there were specific goals to be met. The goals of the 2010 HSSRP were for the students to learn about technologies, systems perspectives, customers/stakeholders, teamwork, process in building systems, and prototyping.

MONMOUTH UNIVERSITY
WHERE LEADERS LOOK *forward*



Rapid Response Institute

Established in 2004

High School Summer
Research Program
2010
*Dynamic Information
Visualization*

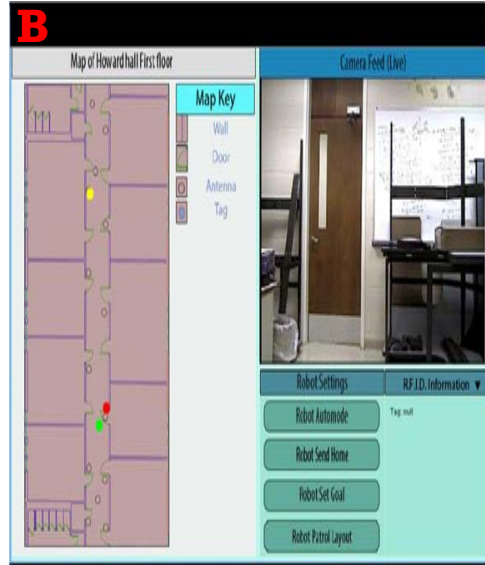
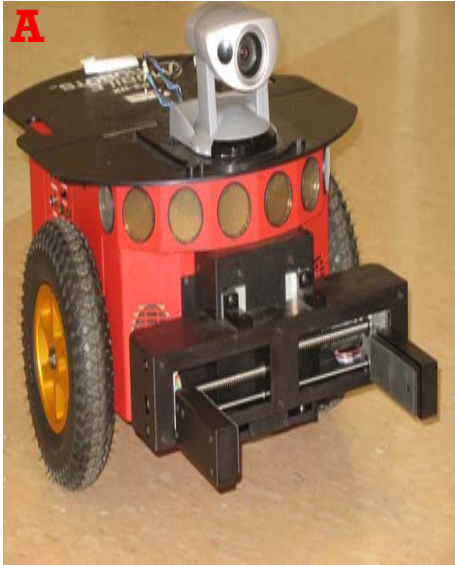
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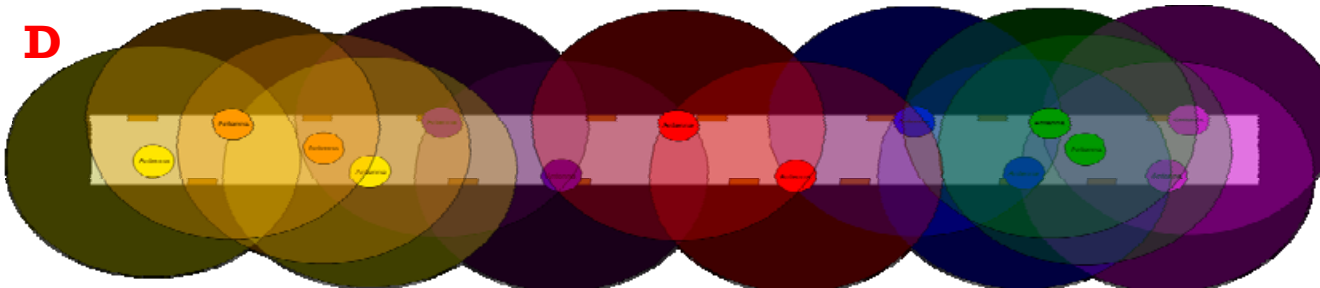
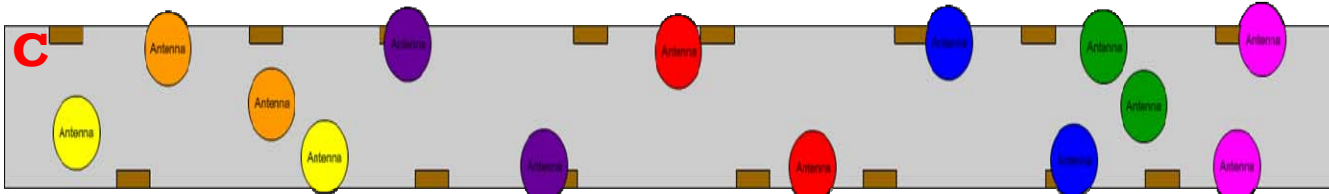
ER-LOCATOR

DIV

The ER-Locator tracks first responders in a building and takes action based upon certain events. This application involves three principle technologies: RFID, Robotics, and Electronic Floor Plans. This program allows first responders wearing RFID tags to be shown dynamically on an electronic floor plan. The program user can select a first responder on the floor plan to display more information about that individual. In addition, the user can dispatch the robot to any first responder in case of an emergency.

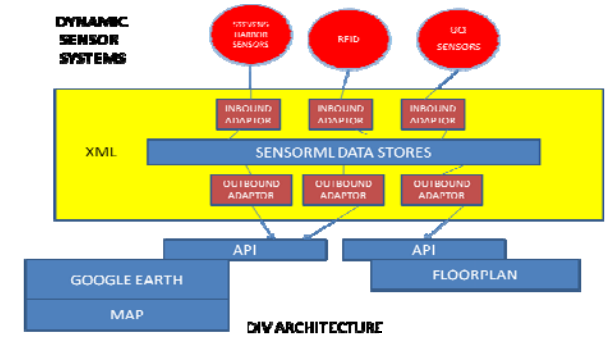


- Figure A is Napoleon the Robot, a full computer on wheels that can be dispatched remotely to any location.
- Figure B is the ER-Locator user interface.
- Figure C is a diagram of the Howard Hall hallway depicting the RFID antenna locations.
- Figure D illustrates the results of the algorithm used to determine the precise location of the first responder RFID tags.



DIV stands for Dynamic Information Visualization. DIV helps explore the issue associated with mapping dynamic data onto geographic spaces. DIV is made up of an architecture for acquiring sensor data, converting these into standard data formats, and placing that data onto appropriate geo-location forms, like maps.

DIV is designed to support the development of emergency management related capabilities using software prototypes.



FLOOD DETECTION VISUALIZATION

The purpose of Flood Detection Visualization was to deploy a website that displays current and expected flooding in the Shrewsbury River basin. There are five water level sensors and three meteorological sensors* deployed on local bridges which were:

1. Highlands
2. Oceanic*
3. Rumson*
4. Pleasure Bay
5. Gooseneck*