Opportunity and Significance
• We wanted to innovate a method to communicate via SMS text messaging to alert the homeowner of a sump pit high water level condition.
• Allstate Insurance reports that the average homeowners claim due to basement flooding is $48,000, but the impact is even greater when you consider the lost memories from the destroyed pictures and irreplaceable possessions.

Technical Approach, Accomplishments and Results
• Arduino Yun with a built in Wi-Fi chip is utilized to cut down on wiring connections and to enable easy programing.
• Frame work is constructed of durable but economical Unistrut.
• The unit meets all electrical codes for installations in “wet locations”.
• Materials are readily available and cost effective.
• Plexiglass allows a unobstructed view into and around the sump pit.
• Enclosure boxes are economical, corrosive resistant and UL and NEMA 4 rated.
• Enclosures are equipped with at clear face so that user can see any faults from a safe distance.
• The system is low voltage so there is no danger of electrocution.
• The unit has an integrated battery back up that will out last competitive models on the market.

Next Steps for Development and Test
• Investigate changing to a Raspberry PI for cost savings.
• Be able to integrate the system with a house alarm.
• Investigate adding a radon sensor into monitoring the circuit.
• Integrate system to a fire and carbon monoxide sensor to automatically call 911.
• Install a low voltage battery back up to provide power for a backup pump and trigger secondary warning systems.

Commercialization Plan & Partners
• Investigate other materials to lower the cost.
• Create modular systems that can integrate with each other to drive the cost lower.
• Work with alarm companies to integrate this into their alarm packages.
• Industrialize the unit to mount on chemical and waste tanks to alert 911 or a HAZMAT if a spill occurred.
• Install a humidity and temperature sensor to monitor conditions for curing meats and cheese in a home application.

Related Work and State of Practice
Micro processor programming classes and digital logic classes supplied an excellent foundation for producing the code necessary to implementing the circuit. Prior knowledge learned in the construction trades and knowledge of electrical code requirements benefited the design and construction of the system.