



UNC CHARLOTTE

The WILLIAM STATES LEE COLLEGE of ENGINEERING

Senior Design Project Description

Company Name	EPRI	Date Submitted	4/9/2018
Project Title	Monitor Underwater Sediment Collection Behind Dam Face (EPRI_DFACE)	Planned Starting Semester	Fall 2018

Personnel

Typical teams will have 4-6 students, with engineering disciplines assigned based on the anticipated Scope of the Project. 250 hours are expected per person.

Complete the following table if this information is known, otherwise the Senior Design Committee will develop based on the project scope:

Discipline	Number	Discipline	Number
Mechanical	3	Electrical	2
Computer		Systems	
Other ()			

Company and Project Overview:

The Electric Power Research Institute (EPRI) conducts research, development, and demonstration projects for the benefit of the public in the United States and internationally. As an independent, nonprofit organization for public interest energy and environmental research, we focus on electricity generation, delivery, and use in collaboration with the electricity sector, its stakeholders and others to enhance the quality of life by making electric power safe, reliable, affordable, and environmentally responsible.

Project Requirements:

Hydropower is an important part of the world energy mix, producing 16% of the world's energy. One of the impacts of impeding the flow of water in a naturally occurring waterway is the transportation of sediment is impeded and as the water flow slows on approach to the dam, the sediment collects behind the dam. The collection of sediment becomes so extreme in some situations that the hydroelectric units can sometimes clog up with sediment. Sensors that could be distributed on the upstream dam face that could monitor collection of sediment could assist plant personnel of the accumulation of sediment. This device would need to operate in the elements and underwater/sediment depending on the design application. As the accumulation of the sediment is slow, the sampling frequency would not need to be high; daily/weekly sampling points would be adequate.



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Expected Deliverables/Results:

- Complete design (drawings, BOM, specs, etc.) for a full scale system
- Demonstration Prototype of system

Disposition of Deliverables at the End of the Project:

Provide to EPRI at conclusion of Expo

List here any specific skills, requirements, knowledge needed or suggested (If none please state none):

- None