



UNC CHARLOTTE

The WILLIAM STATES LEE COLLEGE of ENGINEERING

Senior Design Project Description

Company Name	EPRI	Date Submitted	4/8/2018
Project Title	Hyperspectral Imaging Pipe Platform (EPRI_HYPER)	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	1
Computer	1	Systems	
Other ()			

Company and Project Overview:

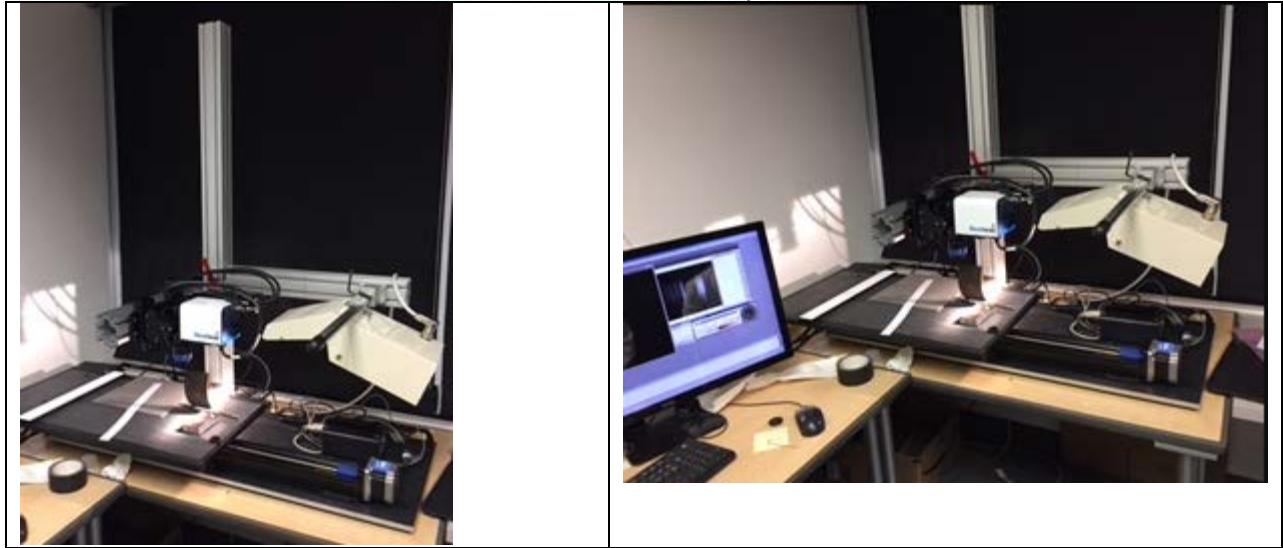
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A hyperspectral imaging laboratory system has been installed in the EPRI Charlotte office. The goal of this system is to evaluate contamination and/or cracking on a variety of materials that include metallic and concrete components. Currently, the system uses two stationary cameras, a stationary light source, and a flat moving platform such that the cameras can scan the entire sample at a designated speed and fixed distance.



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Project Requirements:

Samples EPRI plans to evaluate on the system have geometric complexity that are not flat. For example, piping samples of various diameters. Since the system measures reflected light, it is important that the sample surfaces being measured are perpendicular to the cameras and the light source. Because of this, using a flat platform for pipe examination is not ideal. We are looking for a working model of a platform that will move a curved sample at a designated speed so that the area being examined remains perpendicular at a fixed distance with the camera system during the data acquisition process.

Expected Deliverables/Results:

Working unit that would hold the unit under test in the imaging zone, the rotate it 360 degrees about the horizontal axis. Rotation would be controlled via a computer interface and allow control to preprogrammed degrees/second rates.

Disposition of Deliverables at the End of the Project:

Deliver to EPRI supporter at the conclusion of the Expo.

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

- None