

Project I Description

Project Name: Automated underground pipe inspection machine

Sponsor: LAU

Team Size: 3 MEE Students

Project Overview

After installation, underground pipes should be inspected for visual and structural defects according to ASTM standards. Getting accurate measurements from underground pipes is challenging given the variability in the testing conditions while the machine is traversing the pipe length. Variability arise from the machine moving off the pipe centerline which makes the measurement of vertical and horizontal diameters challenging.

The aim of this project is to design and build an automated underground pipe inspection machine that can take accurate measurements under different operating conditions. The students' technical design skills will be challenged to come up with a solution to this problem.

Project Areas and Majors needed

Kinematics (1 MEE Student)	Instrumentation (2 MEE Student)
-------------------------------	------------------------------------

Project Deliverables

Design and Build an automated underground pipe inspection machine with the following functions:

- 360 Visual inspection of the pipe structure under different lighting conditions
- Accurate measurement of the vertical and horizontal diameter of the pipe
- Automatic movement inside the pipe from end to end
- Automatic error correction while moving inside the pipe
- Data logging of the test data on the machine
- Wireless data broadcasting to the test station
- Perform testing according to ASTM standards for underground pipes