Robots in sewers will save society millions

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New project will use robots to monitor the condition of sewers. The robots risk meeting a little of everything down below. Credit: Aarhus Water

In the future the country's sewer systems will be inhabited by surveillance robots. Using robots, big data and artificial intelligence (AI),

a new Danish research project will save hundreds of millions of kroner on maintaining sewers.

Lack of knowledge about sewer pipes means that Danish water suppliers must replace pipes long before expected. Even a small improvement in the service life of pipes can mean a savings in the three-digit millions; that is the ambition of a new joint research project that includes Aalborg University (AAU), water suppliers and technology companies, funded by Innovation Fund Denmark.

One of the most expensive infrastructures in Denmark lies beneath the ground. Today, the Danish water suppliers that own and are responsible for the sewer networks use manual TV inspection to examine the condition of sewer pipes.

"The latest computer vision and AI algorithms we are researching enable the automation of complex tasks. Based on our experience from other research projects, we expect to be able to automatically find errors in the sewer network based on the sensor data that the new robot will deliver," says Thomas Moeslund, Professor at Aalborg University.

Water suppliers do not have the capability to constantly monitor all sewer lines; this means that wear and damage to a pipe are not detected before they become very critical and the pipe must be replaced. The vision is that monitoring sewers with robots be done automatically, and that water suppliers will only have to intervene right before a pipe needs renovation or replacement.

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Potential for an export adventure

The goal of the project is to automate the entire inspection process. Robots must be put down in the sewers to collect data on the pipes, and computer algorithms will then analyse the data to find irregularities in the pipes.

The main objective is to minimize the costs to water suppliers on their

sewage networks, but in addition, the project can also lead to increased profits from exports for the companies involved because sewage networks the world over are experiencing the same challenges as Denmark.

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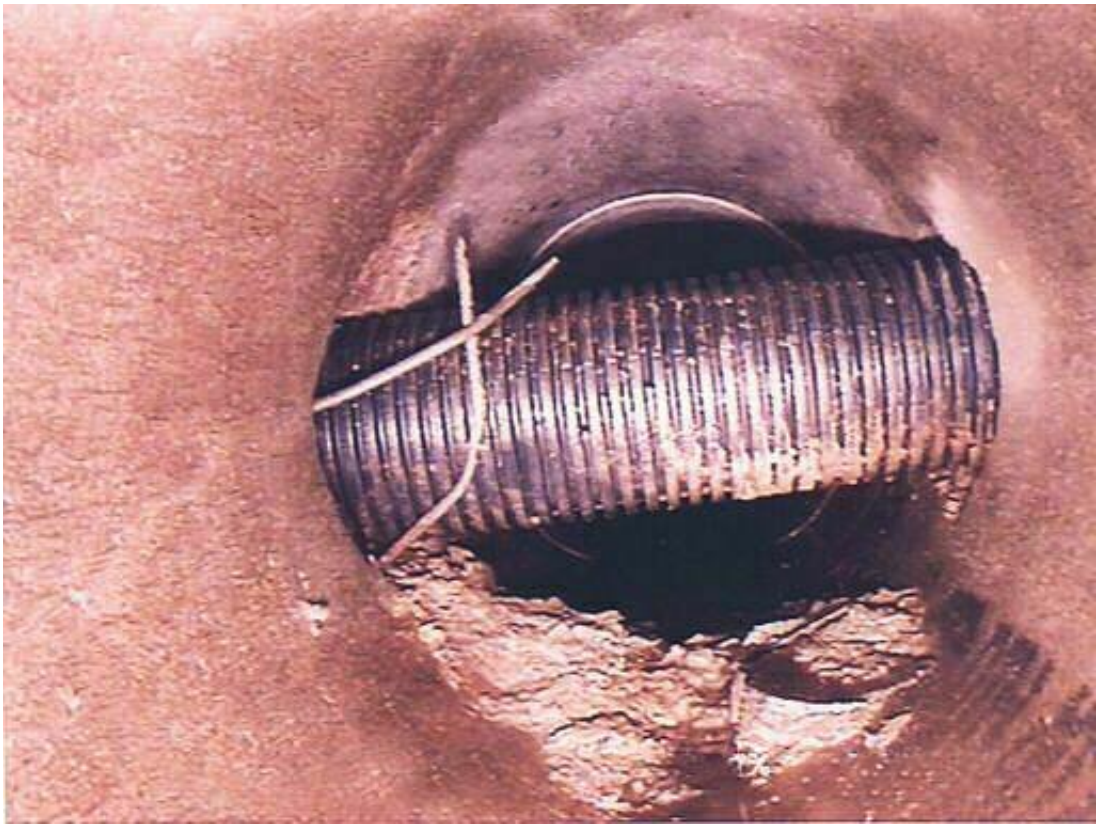
"With this project, sewer systems will be more transparent because we are using the latest research and technology to gather data and then analyse this data. The savings potential for Danish water suppliers is big. Then bearing in mind that the problem is the same throughout the entire world, the potential is enormous," says Jens Peder Kristensen, CEO of TinyMobileRobots ApS.

Research and intensive testing are necessary in order to achieve the goal. With the investment by Innovation Fund Denmark, the project partners

will have the opportunity to do research and testing that ultimately will show that Denmark is in the absolute elite in high-tech product development.

The project partners have extensive experience in their respective fields, and will jointly put together a product with some of the most promising technologies being worked with and studied.

Aalborg University and the University of Southern Denmark's vast experience and knowledge in computer vision and robotics will help businesses develop a high-tech solution that can work and be sold on the commercial market.



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Provided by Aalborg University

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