

Rain gutter water level monitoring

Early debris and clogging detection

Invention

Rain gutter clogging due to dirt, dead leaves, and other debris can impede water flow, causing major damage and other problems. Water can run over the sides of the gutter, causing damage to the foundation and other parts of the building. And standing water attracts insects such as mosquitos, since it is ideal for breeding. In colder climates, collected water can freeze, damaging the roof or the gutter itself.

Researchers at the University of Wuppertal have developed an innovative approach to solving this problem: equipping rain gutters with a sensor that regularly measures the water level. If the level remains unusually high for a long time, there may be clogging.

The invention consists of a water level sensor in a riser pipe for measuring the current water level in the gutter. A microcontroller sends the resulting data wirelessly to a platform that evaluates it with an analysis module and notifies relevant individuals through a communication medium. Functional impairments such as clogging can thus be detected early and corrected before expensive maintenance and repair work becomes necessary.

Roofing companies can use this information to integrate cleaning into their work schedule before there is major damage or other inconvenience. This increases efficiency, avoids major repair costs, and extends the rain gutter's service life.



Detailed view of sensor housing

Commercial Opportunities

This innovative idea gives workshops the option of offering additional digital business models in their maintenance contracts. It also reduces manual rain gutter monitoring, conserving personnel resources. Customer satisfaction and loyalty can be greatly increased and unexpected costs for end customers avoided. In the smart home and smart building area, these sensors can complement or be integrated into existing building automation systems. This gives facility managers or private individuals a better overview of the status of their rain gutters for one or more buildings.



Installation view for two prototypes

Current Status

A German patent application has been submitted to the German Patent and Trade Mark Office. A PCT application can be submitted within the priority year. We are offering interested companies the opportunity to license and refine the technology in collaboration with the inventors and the University of Wuppertal.

An invention from the University of Wuppertal.

Competitive Advantages

- Efficiency
- Predictive maintenance
- Cost reduction

Technology Readiness Level

1 2 3 4 **5** 6 7 8 9

Technology validated in relevant environment

Industries

- Workshops
- Facility management
- Private individuals

Ref. No.

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