

Safety and Operational Efficiency for a Log Flume Ride

Reliable Area Control with Ultrasonic Sensors



The Application

Log flume rides in theme parks are divided into several areas. For safety reasons, only one boat at a time can be in each area. A fully automatic control system ensures the boats can only travel into empty spaces. In addition, the path must be cleared as quickly as possible for the next boat. In track-based rides, inductive sensors are commonly used. However, in log flumes, the boats need some space on either side to float in the water. In this application, ultrasonic technology is the better way to bridge the gap.

The Goal

Passenger safety is the top priority; the risk of boats colliding must be eliminated. At the same time, the system must ensure that the ride operates as smoothly as possible, to reduce wait times for park visitors.

The Solution

An ultrasonic sensor is mounted at the exit of each area. Once one boat goes through the exit, the next boat is able to come through. If the space is occupied, the boats that follow are prevented from entering. Ultrasonics detect the boats regardless of their shape, color, and occupancy. As ultrasonic sensors are noncontact, there is no wear to the boat or the sensor. To detect the boats, a UC6000-30GM70S-2E2R2-V15 ultrasonic sensor is used. This type of sensor can withstand extremely harsh environmental conditions and provides consistently reliable signals.

The sensor switching window – the range between the minimum and maximum distance in which the object is detected – is very simple and intuitive to adjust using two potentiometers. Adjustments can be made in everyday operating conditions on the device itself. The device can be aligned to moving boats. This means that adjustments can be made reliably and specifically for the application. The detection range of the ultrasonic sensor is up to 6 m.



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The Benefit

Ultrasonic measuring is not adversely affected by changing weather conditions (strong sun, fog, temperature fluctuations). Detection faults caused by water spray can be avoided with correct adjustment of the measuring parameters. This minimizes the risk of accidental activation. The swivel head of the sensor is very easy to mount and align to the passing boats. It requires no maintenance, since neither dirt nor water droplets can impair its function.

At a Glance:

- Reliable signals in all conditions
- Simple assembly and alignment
- Simple, intuitive settings directly on the sensor
- Maintenance-free operation
- Safe and efficient control

More information at
www.pepperl-fuchs.com/ultrasonic