Adaptive Sampling Rate Algorithm

START

Get current
water_level

Get previous
water_level

rate_of_change =
(current - previous) / time

water_level >
CRITICAL?

YES → interval = 10s
PRIORITY = HIGH
Trigger Alert

NO

water_level >
WARNING?

YES → interval = 30s
PRIORITY = MEDIUM

NO

rate_of_change
> FAST?

YES → interval = 60s
PRIORITY = MEDIUM

NO

interval = 300s (5 min)
PRIORITY = LOW

Configure timer
for next reading

RETURN interval

Threshold Values:

CRITICAL: 80% capacity

WARNING: 50% capacity

FAST: >5cm/min rise

Sensor Height: 3-4m

Max Range: 5m

Resolution: ±1cm

Accuracy: ±1cm