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## Integrated R&D System for Pb, Hg, Mg, Mn Analysis

### Process Flow Stages

Sample Intake

Routing

Reagent Dosing

Detection

Purification

### Actuation Components

#### ⚡ 4-Channel Relay Module

Controls all 12V devices

Arduino/RPi GPIO pins

All pumps &amp; valves

#### ⚙️ 12V Solenoid Valves (NC)

Route samples to test chambers

Relay CH1, CH2, CH3

Test chambers A, B, C

#### 💧 12V Diaphragm Pump

Main water circulation

Relay CH4

Intake → System

HS