Water level detection device PoC

SPECIFICATION

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| Transmission Range (3 marks) | 1400 (mm) |

**Transmitter:**

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| Supply Voltage Range  (2 marks) | Vmin = 7 (V)  Vmax = 30 (V) |
| Supply Current (at Vcc = 12V) (1 mark) | I = 0.023 (A) |
| Power (1 mark) | P = 0.28 (W) |
| Operational Frequency (1 mark) | f = 9000 (Hz) |
| Wavelength (1 mark) | λ = 624 (nm) |

**Receiver:**

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| Supply Voltage Range (2 marks) | Vmin = 7 (V)  Vmax = 30 (V) |
| Output Voltage – Empty Tank (2 marks) | V1 = 1.38 (V) |
| Output Voltage – Full Tank (2 marks) | V2 = 2.88(V) |
| Accuracy – 20% Water (4 marks) | ∆C = 1 (pF)  2.09V  Change of output signal ∆V = 0.01 (V)  Change of output signal ∆V = 0.478 (%) |
| Output Voltage – Transmitter Failure (1 mark) | V0 = 4.24 (V) |

Note: To earn marks, you will need to demonstrate that these parameters are determined correctly.