Wireless pH Sensor

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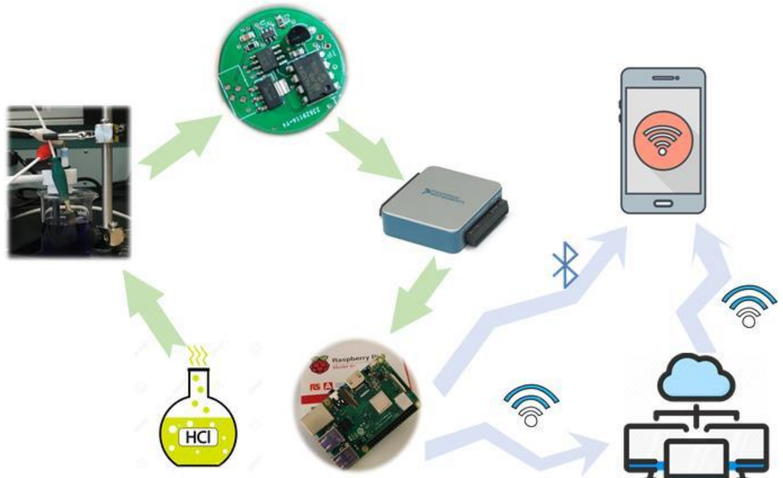
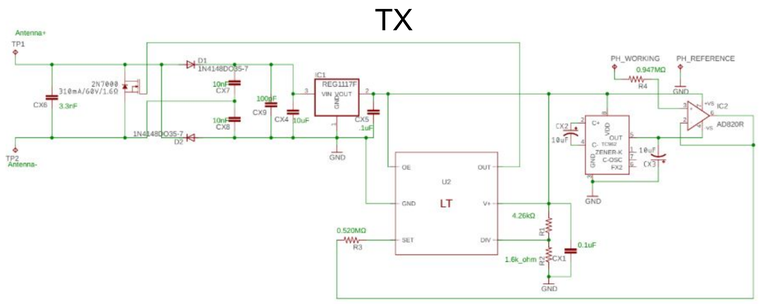
Background

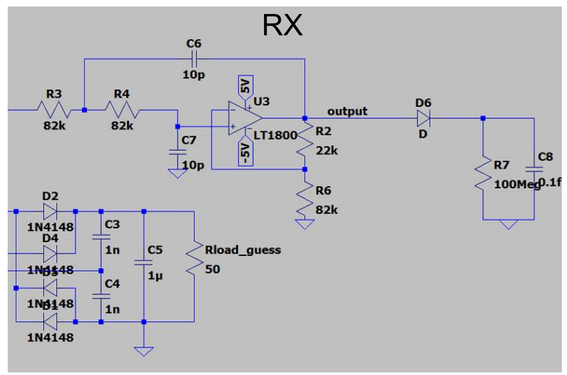
The pH was first introduced in the early 1900s to scale acidity and alkalinity of different substances. Since then, measuring pH accurately and conveniently is vital for various fields, including medical diagnostics, pollution detection, and more. While the idea of digitally measuring pH is flourishing, not many of them have focused on automatic measurements, long-period continuous measurements, and cloud-based measurements.

Goal

To build a device that simplifies the process from acquiring pH electrical signal to finalize the results by utilizing WPT (Wireless Power Transfer) technology. This grants users the accessibility to multiple data records through only one personal device anytime anywhere (internet required).







Milestone

1. By the middle of this quarter, we want to have a working probe with PCB which can return accurate pH values.
2. By the end of this quarter, our goal is to have the sending part ready for transmission of data.
3. For next quarter, our plan is to have the software ready for receiving and processing data. The entire system should be ready for application.

Reference

[1] Docs.aws.amazon.com. (2019). [online] Available at: https://docs.aws.amazon.com/index.html [Accessed 4 Nov. 2019].

[2] Xin Dai, Yongcan Huang, Yanling Li, "Topology comparison and selection of wireless power transfer system and parameter optimization for high voltage gain", Emerging Technologies: Wireless Power Transfer (WoW) 2017 IEEE PELS Workshop on, pp. 1-5, 2017.

[3] B.Santhanam, P.Maragos “Multicomponent AM–FM demodulation via periodicity-based algebraic separation and energy-based demodulation” IEEE Transaction on communications, vol. 48, no. 3, pp. 473-490, March 2000.

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