

Flash-IOT

Weekly Team Meeting 01/30

30 Jan 2020 / 2:30 PM / VLSI LAB

ATTENDEES

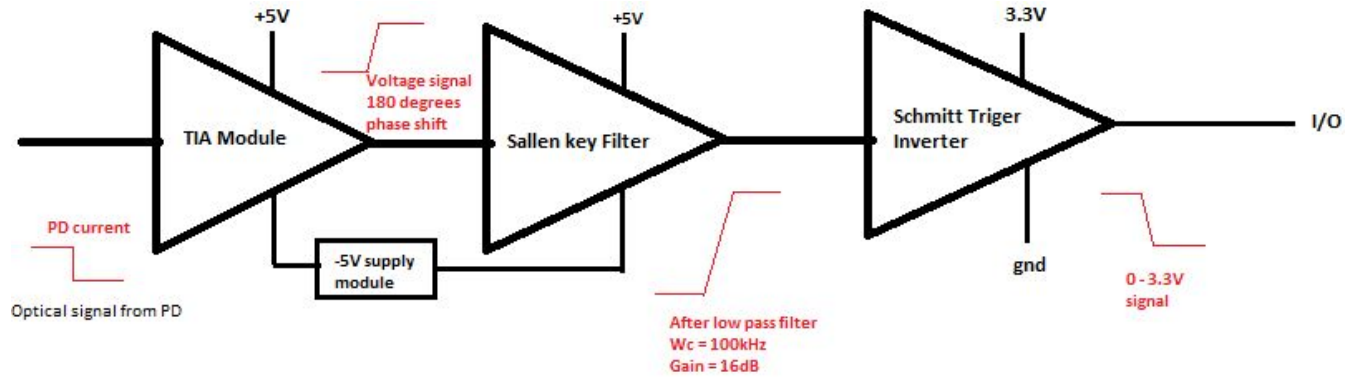
Dr. Ay, Dr.Li, Xueren Wang, Wei Hu, Zhicai Li, Yanqin Huang, Yuhang Dai

AGENDA

- Showing our draft 3D model of our node.
- Reporting development of our circuit test.

NOTES

- Showing our draft 3D model of our node.
 - In the meeting, Xueren showed a rough design for our product appearance in Shapr3D. It is free software available on the Apple store.
 - The model can be improved further to add more detail to the inside of the product box, including lens holder. Filter holder and screws positions to fix the circuit board.
 - Yanqin and Yuhang were learning the software for 3D printing on the laptop.
- Circuit development for the Receiver:
 - We fed the positive and minus 5V signal to the schmitt trigger to generate a 0-3.3V square wave signal. The block diagram of the receiver shown in the following figure:



- However, because we directly fed a -5V to 5V signal to 0 to 3.3V Schmitt Trigger, the negative voltage caused the current clamp which was the spikes shown on the oscilloscope. To solve this issue, Dr. Ay suggested we put a resistor between Sallen Key Filter and Schmitt Trigger to absorb the negative voltage. We put a 33k Resistor to improve this signal and a lumped capacitor was placed at the output of the Schmitt Trigger to improve the stability.
- Due to lack of the testing setup for the LED and lens, it was hard to test the receiver. In the lab, we only obtained operating frequency below 2kHz. This can be further improved by the setup.

ACTION ITEMS

- We will be testing the arduino I/O receiving the pulse signals from the receiver next week. The function generator will be used to generate pulse signal of the LED.
- We will focus on 3D printing to make some lens holders and simple structures to support our testing stage.