The PT2009X uses a graphical display as well as an LED array to assist users in the advancement of their piano skills.

**What’s PT2009X?**
The PT2009X is a user friendly system that helps the user hone their keyboarding skills. This is accomplished with the help of an LED strip which illuminates above the key that needs to be pressed.

The system is complemented with a graphical display. The display shows the musical notes as well as the number of misses or hits of the music.

One of the most distinct features of the PT2009X is its ability to adjust the tempo of the music. This allows the user to train at a slower pace or challenges them at a faster pace.

**Need**
The PT2009X offers:
- A different method of practicing
- Effective way of learning
- Fun way of interacting with music and keyboarding

**Process**

**Receiving the signal from keyboard**
- The signal from the keyboard was retrieved with the circuit above.
- The signal obtained from this circuit was passed to the FPGA’s UART unit.

**Powering the LED’s**
- To decode 7 inputs to 76 LED’s, two levels of multiplexers were needed.

**Future Developments**
- Add navigational menus.
- Add lessons and drills.
- More song selections.
- Adjustable LED strip.

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