

Closed-Loop Control for Variable Inductor System at High Frequencies

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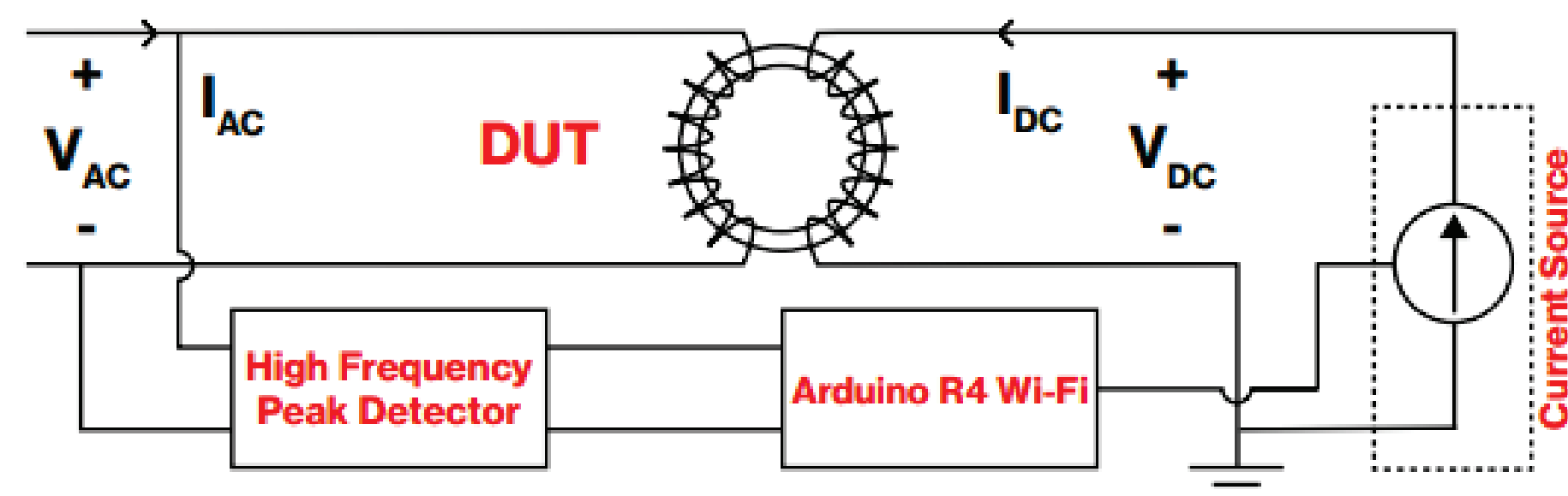
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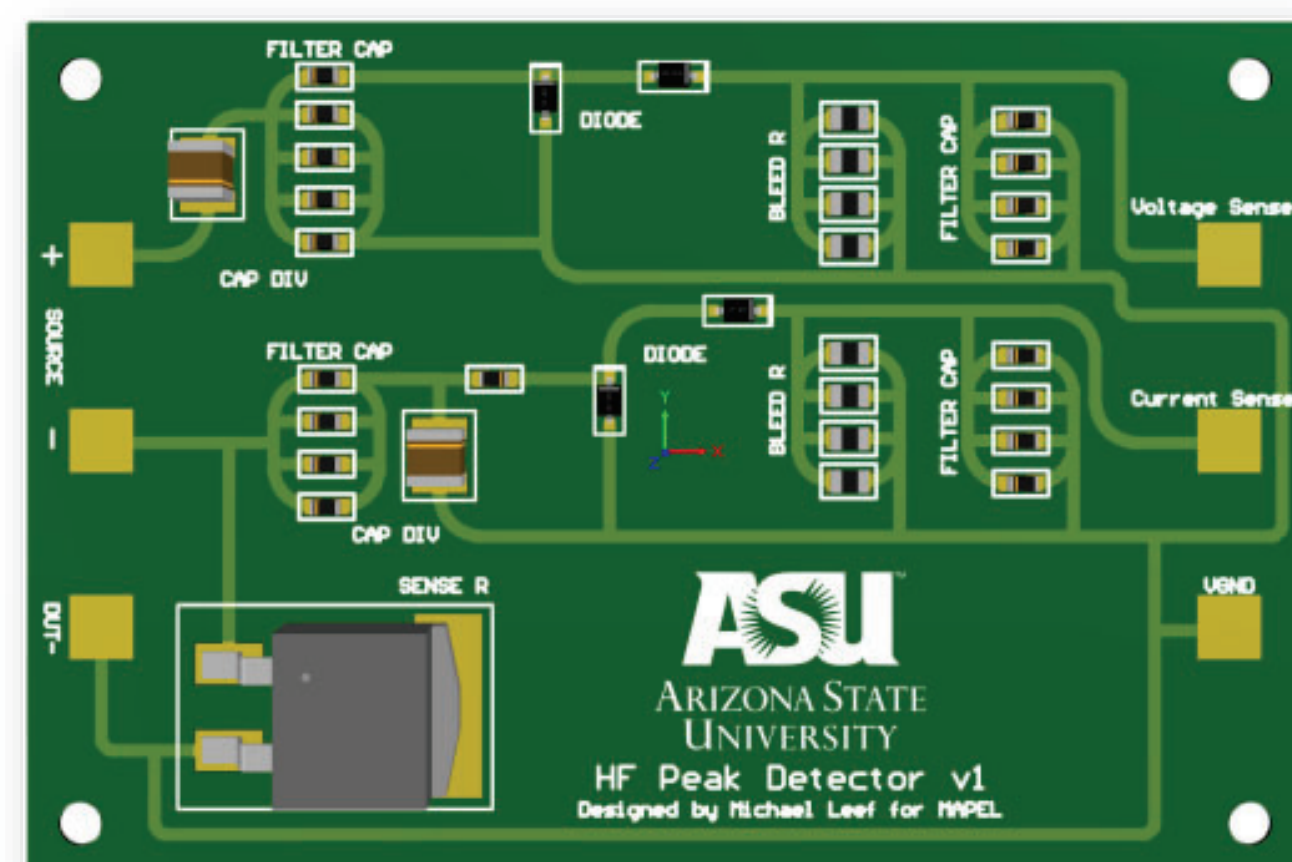
Abstract

A closed-loop feedback mechanism for controlling inductance in magnetic materials is necessary because parasitic effects might be difficult to account for when designing variable passive devices. By manipulating magnetic materials to saturation, permeability can be modulated, enabling dynamic control of inductance with AC inputs. But measuring the AC input compromises the signal integrity required to determine the DC current for a given inductance. To meet these obstacles, this project will test a high frequency peak detector and perform any necessary embedded system modifications. constructing a device interface board as well as testing and controlling mechanisms.

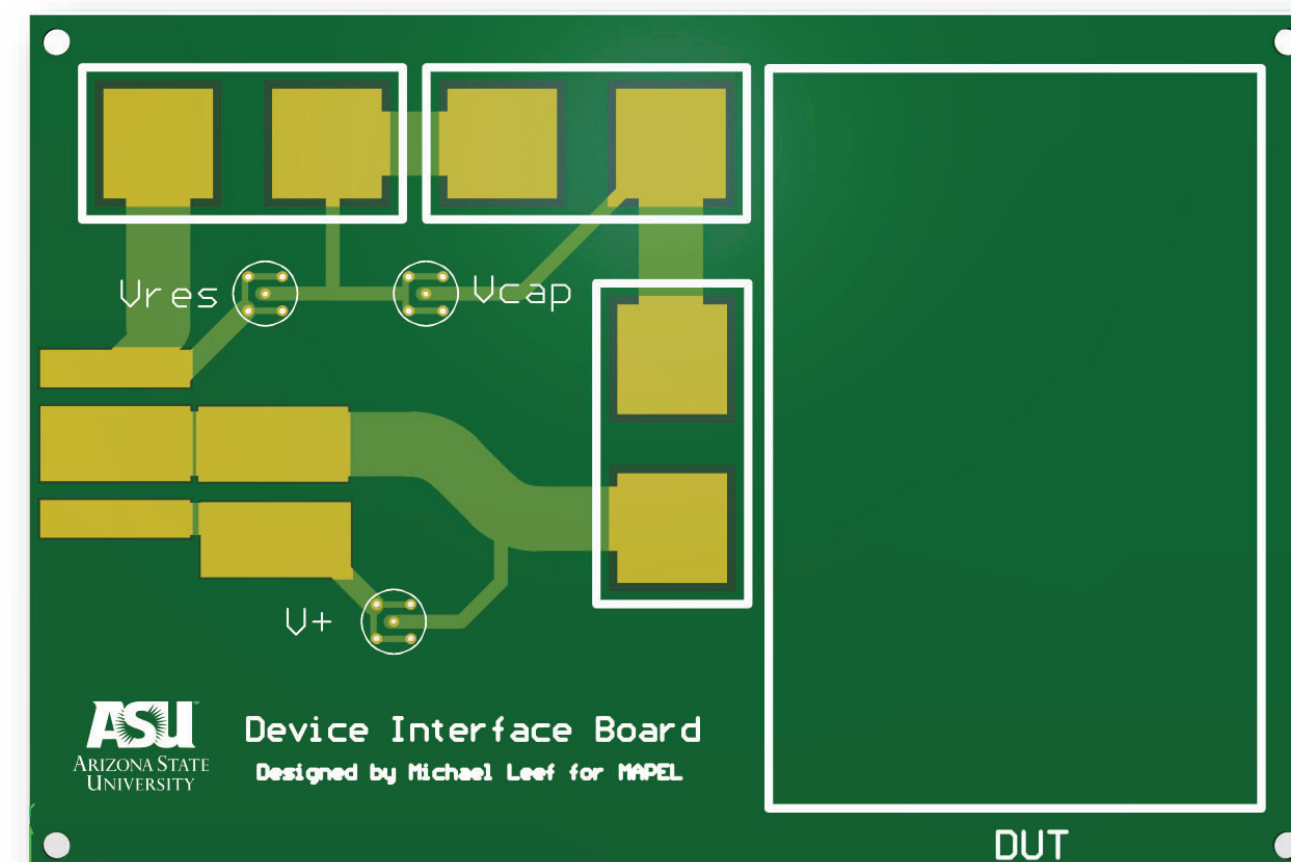
Contraption



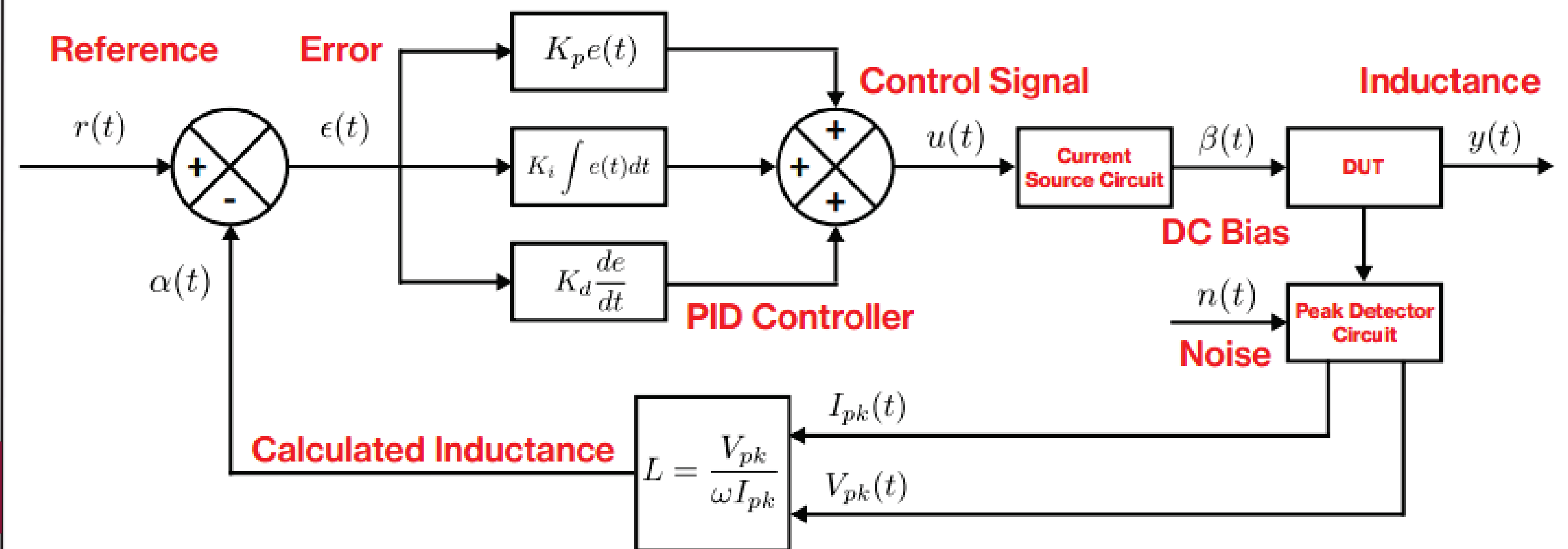
HF Peak Detector



Device Interface Board



Control System Design



Future Steps

- Continue fine tuning the instrumentation devices to remove any abstraction between the device operation and the readings we observe.
- Establish rapid and efficient control using components that are reasonably accessible.

Acknowledgments

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