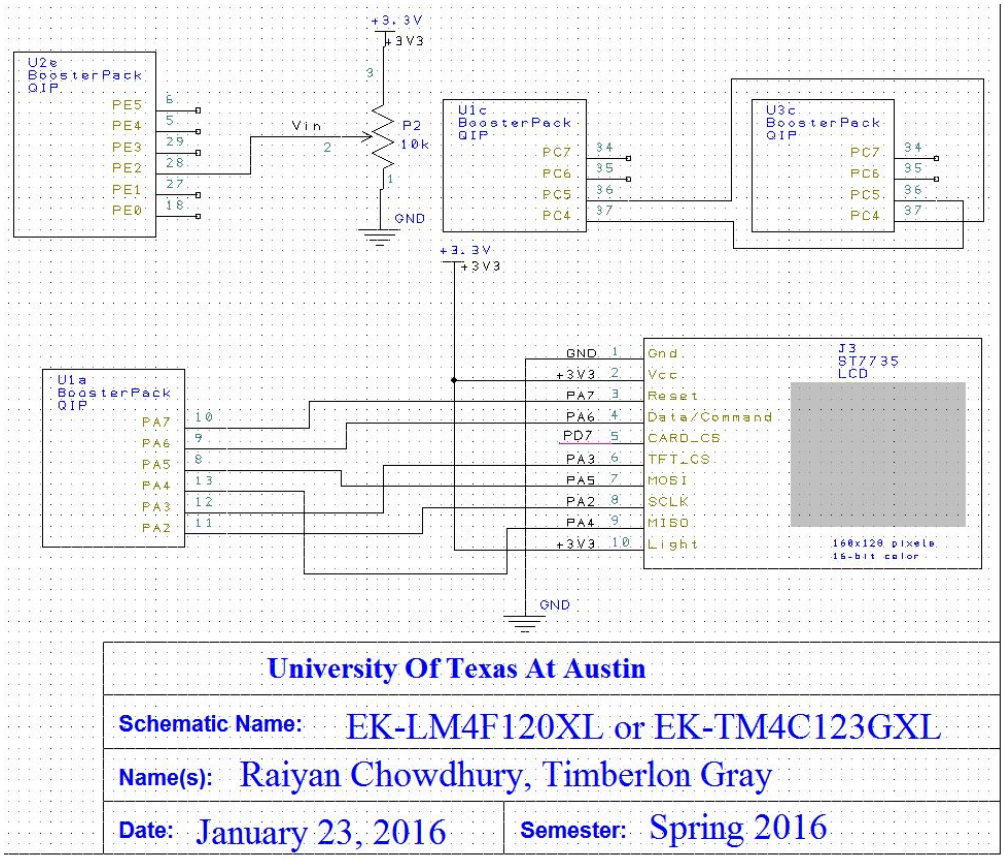
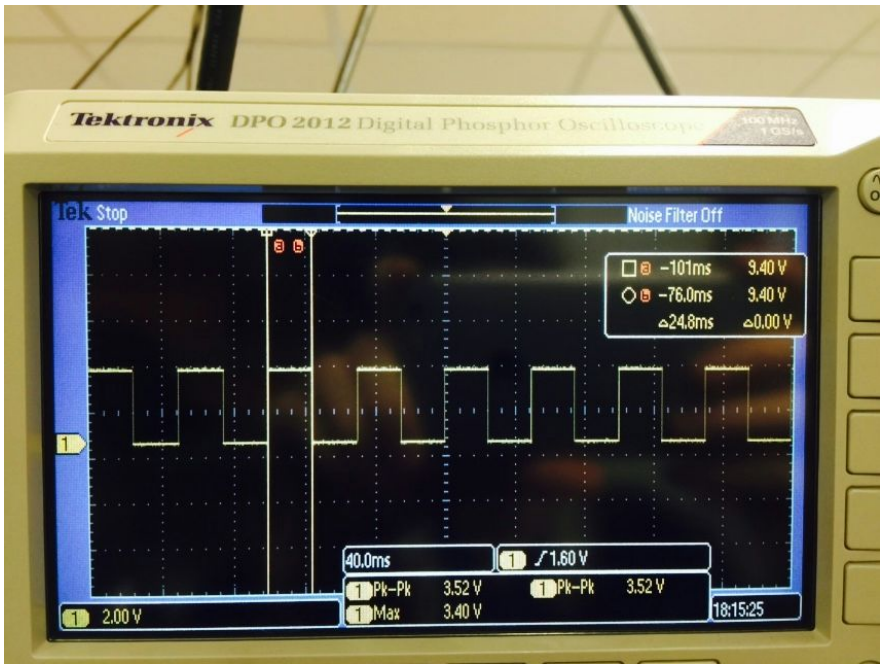
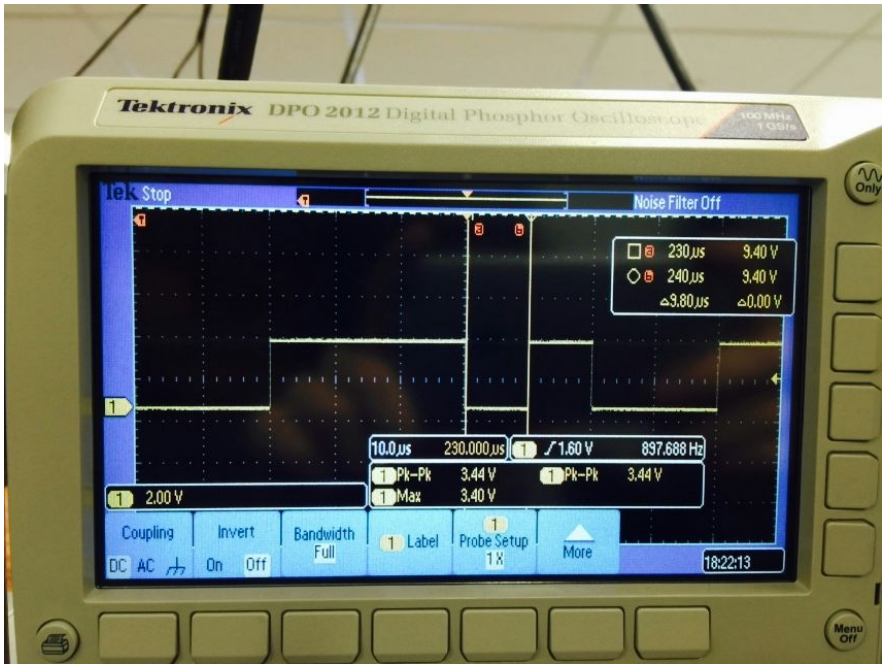
Circuit Diagram:



SysTick Heartbeat:



Transmitter output (time shows width of one bit):