Johns Hopkins University

Project 1

Morse Code LED or LCD System Development

Miles Gapcynski

EN.605.715.81.FA19 - Software Development for Real-Time Systems

Professor Doug Ferguson

09/08/2019

Contents

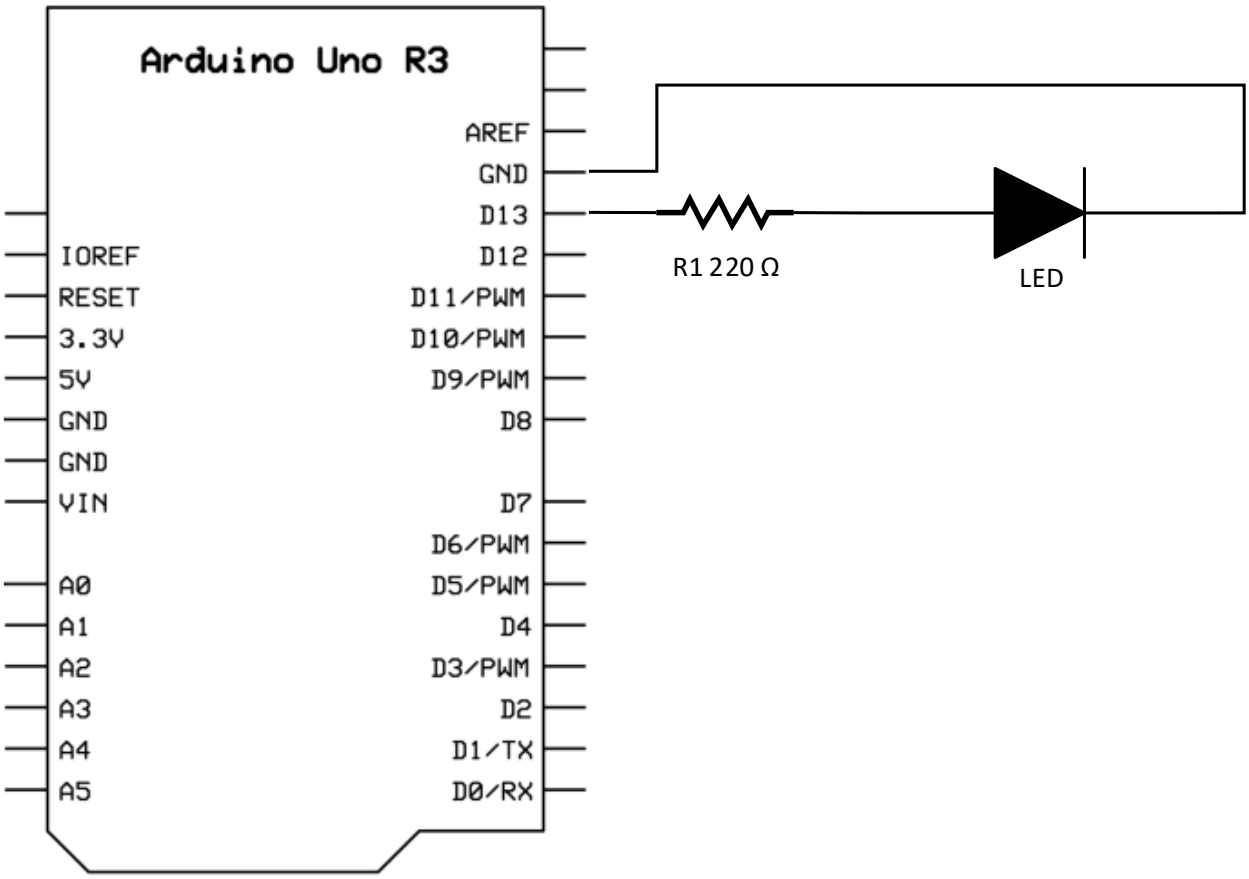
Derived Requirements

The following requirements were derived from the Project 1 Morse Code LED System Development document:

- The system shall read a user-defined string in from the serial port (USB).
- The system shall buffer serial data until a carriage return or line feed is received, or until the buffer reaches 640 characters, whichever comes first.
- The system shall display the user-defined string as a series of Morse code sequences using an LED.
- The system shall run continuously unless a sentinel is read in from the serial port (USB).
- The system shall support sentinels of CTRL+Z and CTRL+C.

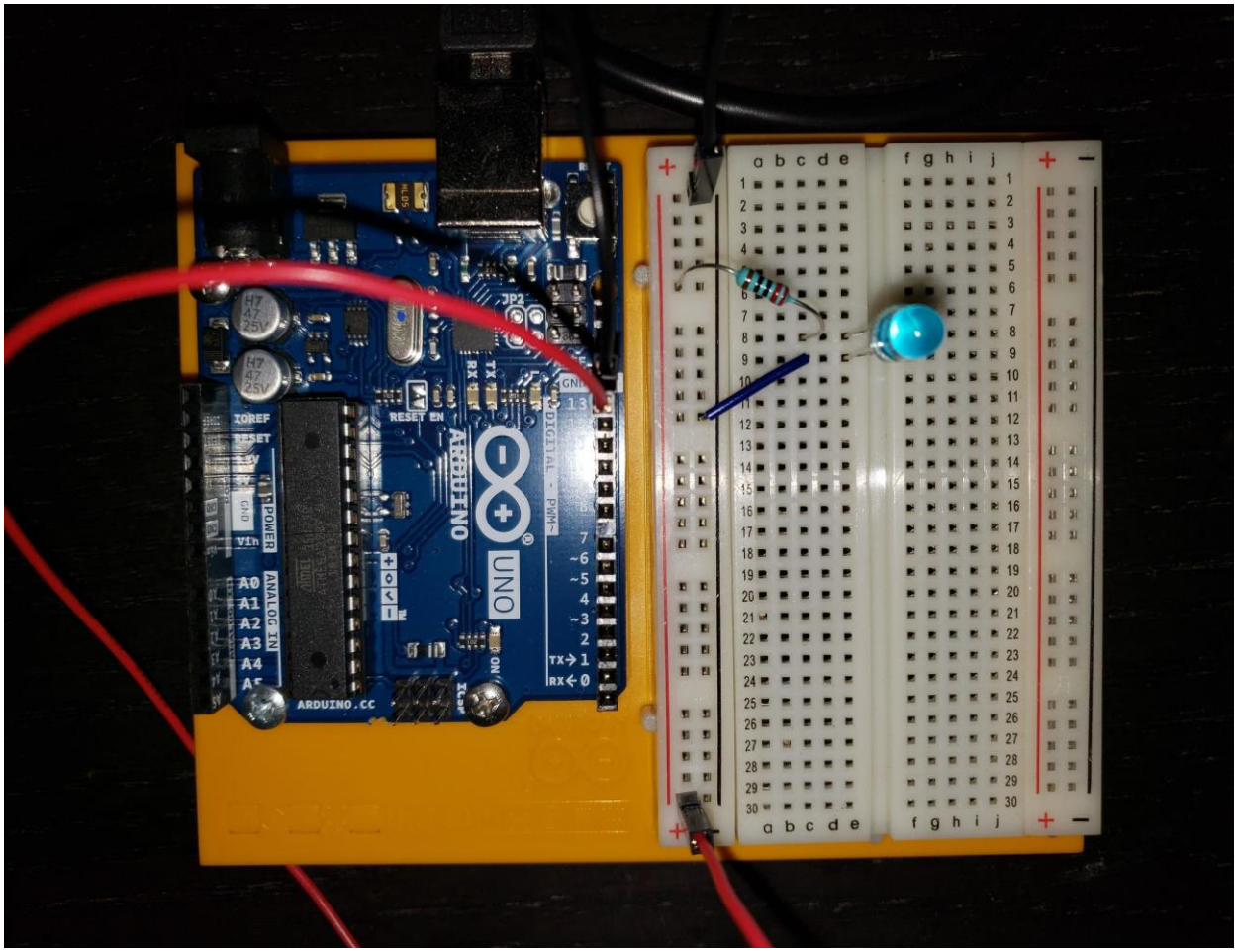
Hardware Design

The following diagram is a schematic of the circuit connected to an Arduino Uno (rev. 3) that will output Morse code using an LED:



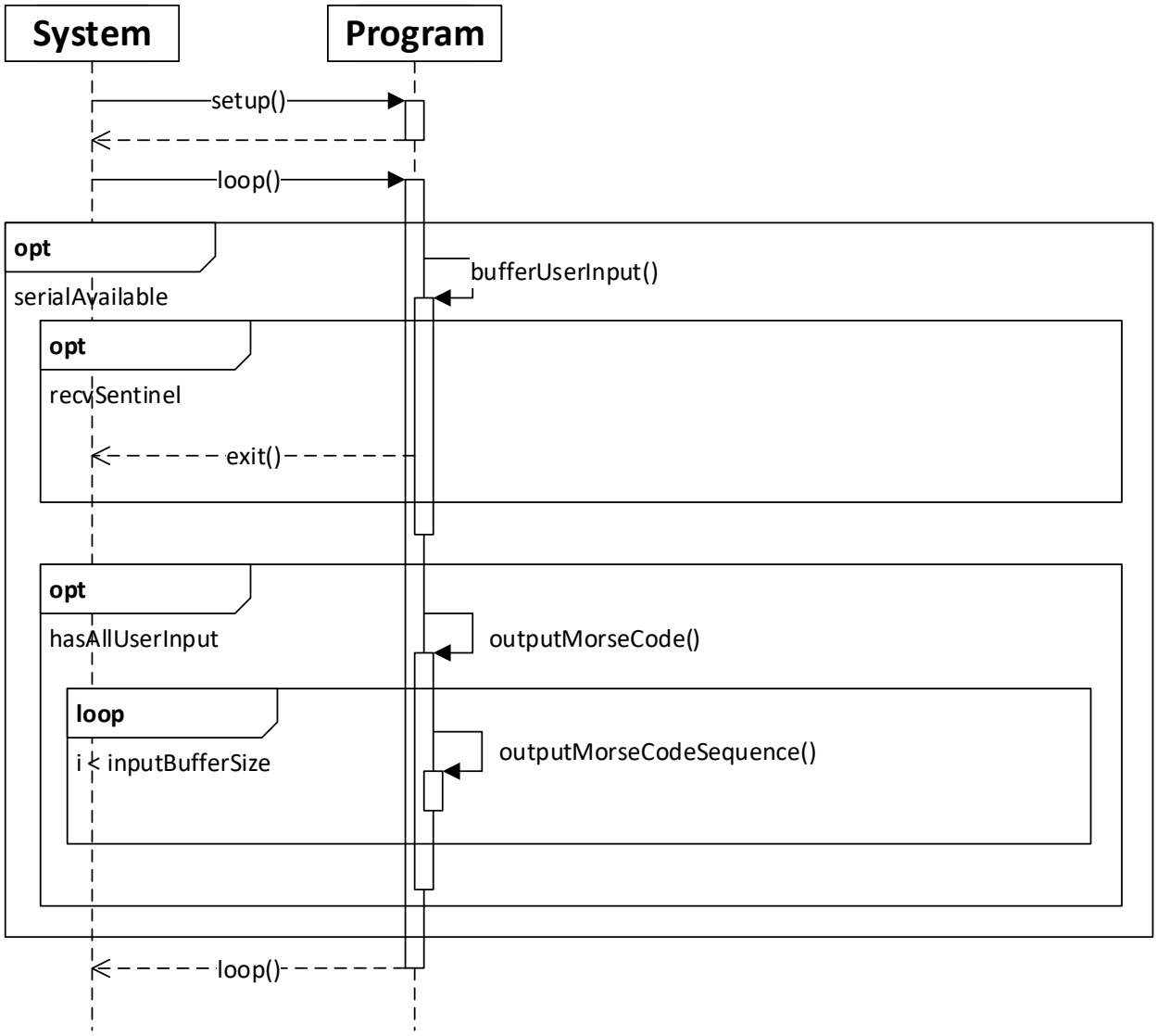
Board Layout

The following picture showcases how the hardware design was implemented using an Arduino Uno (rev. 3) and breadboard:



Software Design

The following diagram is a sequence diagram of the program that drives the circuit to output the user-defined string as Morse code:



Video Demonstration

A video demonstration of the software and Arduino running can be found at the following link:

https://www.dropbox.com/s/cbm49dvw5zlg7wb/Miles_Gapcynski_EN_605_715_81_Project_1.mp4