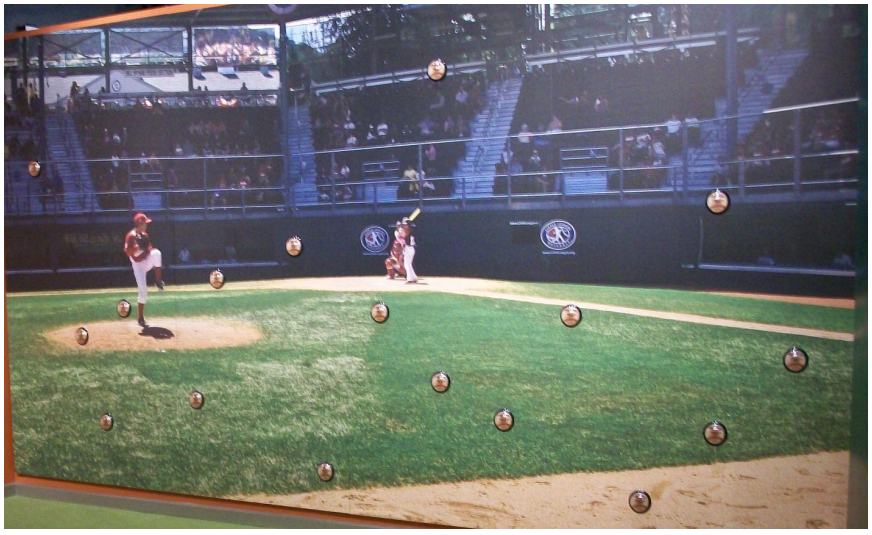
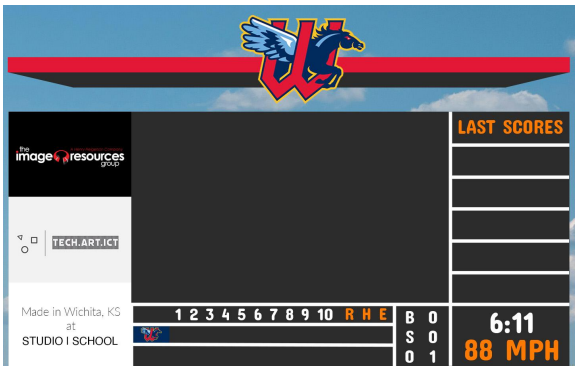
Interactive Baseball Game Overview

From the players perspective

On approaching the game the player will see a wall with the image of an outfield and on the wall are 14 randomly placed illuminated buttons that look like baseballs. The buttons flash at random slowly.



To the right of the wall is a control panel with one button, some speakers, and a display that shows instructions.The player pushes the button.The display fades to an image of the scoreboard and the game begins.



The lights on the wall flash rapidly and randomly for a time and then one light stays on. At that time the control panel display shows large digits on the scoreboard that begin counting up in 1/1000 seconds increments. The player runs to the wall and hits the illuminated button and the time count stops. During this time the speakers play sounds of a crowd at a ball game, the crack of a bat, and crowd cheering. Scores of the last 5 plays are displayed.

What's happening behind the scenes

In a room behind the control panel there is a small laptop computer managing the images that show on the display and sounds that play on the speakers. The laptop operating system is Linux and it is configured to run software even if the laptop is closed so there's no need to leave it open. And if the power is removed the laptop will automatically shut down and will reboot when power is reapplied. There is no need for anyone to reboot the operating system or restart the program. Just flip the power on.

Links to the Laptop operating system and programs that are running are listed in the spreadsheet below.

But the laptop isn't actually running the game. It's just taking cues from another device called the outfield controller that tells it when to show an image or play a sound. The controller is located behind the wall and connects all the components of the system together.

All of the buttons are plugged into the front panel of the controller. The first connection(on the left) is the button that starts the game. The start button wire runs all the way back to the control panel. The other connections go to the 14 buttons on the outfield wall. On the back of the controller there is a 12 volt power jack, An RS485 serial port for communicating to the laptop, and a USB port for programming the controller, if necessary.

When the start button is pushed the controller sends a message to the laptop through an RS485 serial port to tell it to show the scoreboard and then the controller starts flashing all the outfield buttons. After a random period of time the controller picks one button to stay lit and starts sending time information to the laptop indicating the elapsed time. When the player hits the button the controller stops the time and sends a signal to the laptop to show the score. After 10 seconds the controller will reset the game.

Technical Documents

This is a list of the associated detailed documents and files specific to the various components of the system

Name of document(attached)	Document description
InteractiveGameSystem1.pdf	Schematic of the overall system layout and connections
OutfieldControllerCircutry.zip	Design files for the PC boards(Eagle PCB)
OutfieldControllerCode.ino	The program that is running in the outfield controller(Arduino) https://github.com/Together-Technologies/OutfieldController
pd-baseball-master.zip	The program that is running on the laptop(Pure Data) https://github.com/Together-Technologies/pd-baseball
Interactive Baseball Game Overview.pdf	This document