Outdoor Equipment Set

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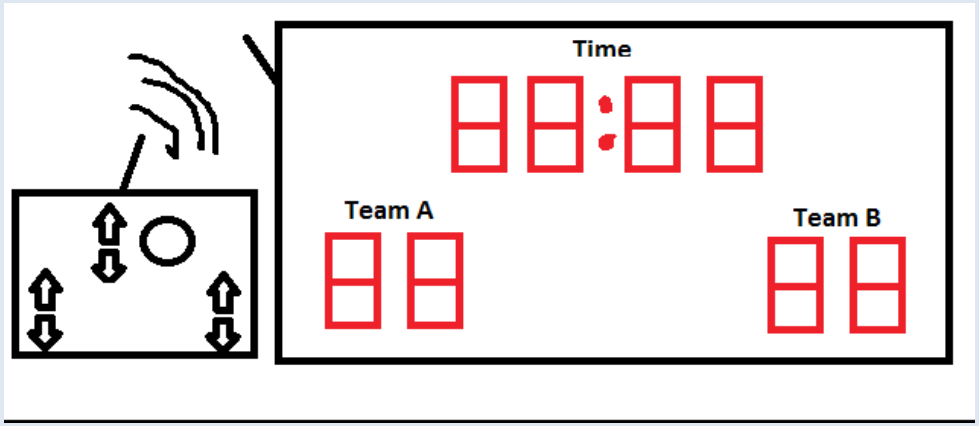
Overview

- Scoreboard
- Wireless
- Outdoor Use
- Forward Thinking Open Platform Design

Scoreboard-Specifications

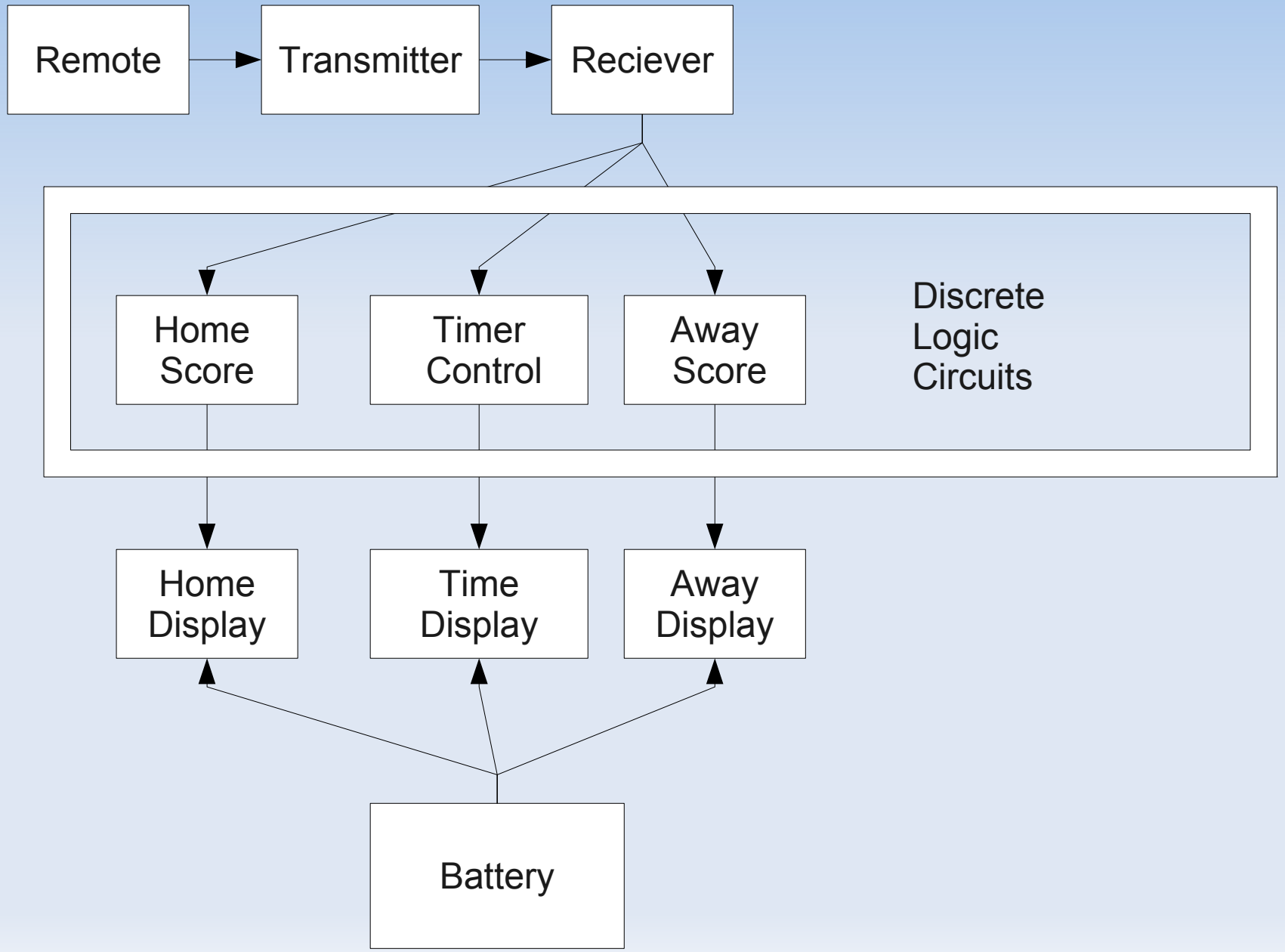
- Timing up/down
- Scoring for two teams
- 4 digits for timing, two digits for each scoring section, plus a colon
- 2' tall, 3' long
- Discrete logic chips
  - Decade counter
  - 7 Segment driver
- Able to be mounted on 2 tripods



Scoreboard-Power Specifications

- Entire system requires 1.4 A
- Remote control will have its own power source
- Each Segment Requires 20 mA.
- 8 total 7 segment displays
- Plus recievers and IC gates
- Battery specs: 12 Volt 10 Ah battery will give around 8 hours of continuous use

Scoreboard-Block Diagram



Remote Controller

- UART from the ATMEL AVR ATMEGA168 into an XBEE wireless Module.
- Remote Control will be just take in button presses and transmit them directly to reciever.
- Can also pass information from the scoreboard back to the remote controller for redundancy in displays.

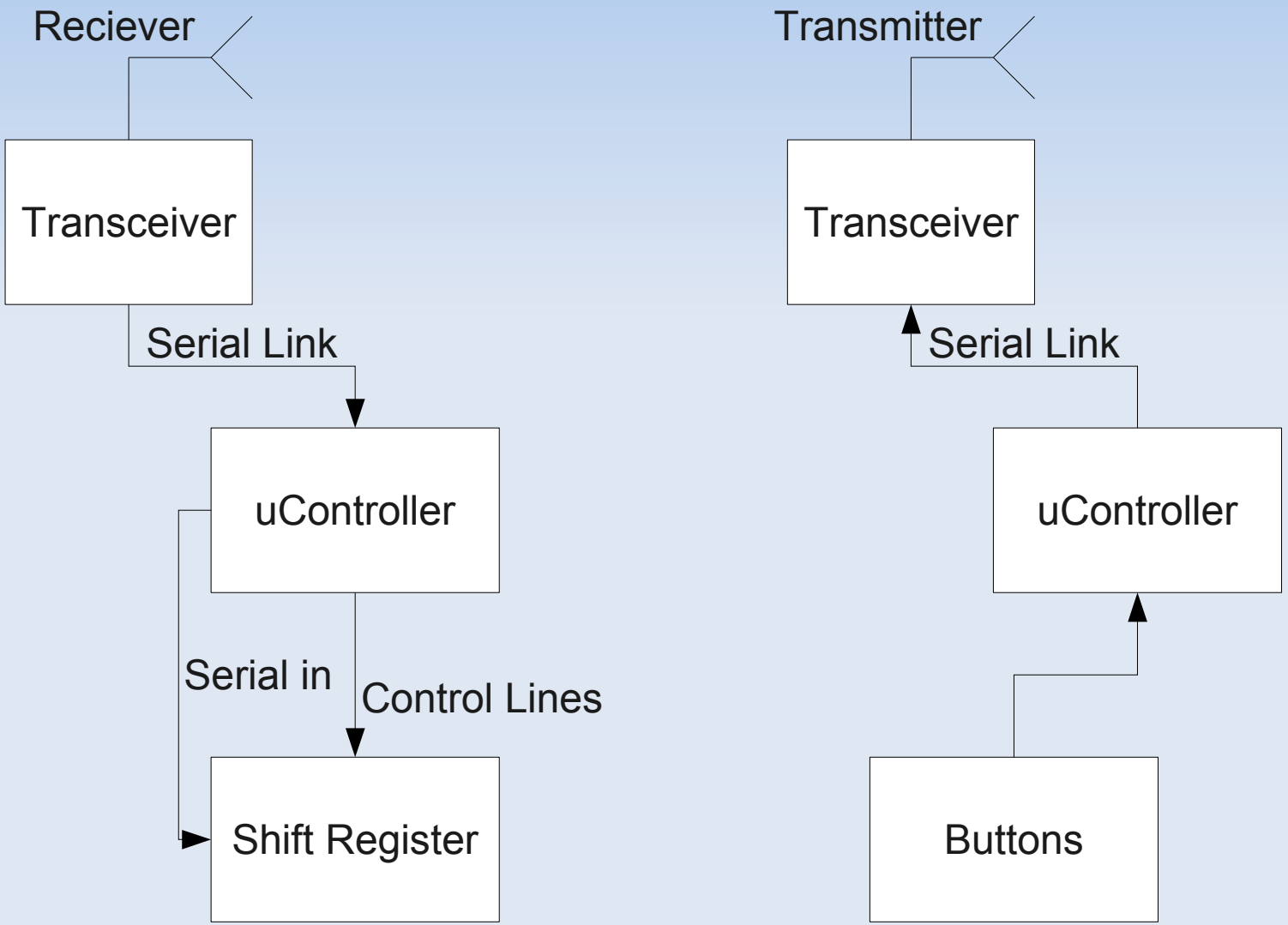
Remote Controller

- Remote essentially ”passes” button presses onto scoreboard, could easily be connected to future products.
- Modular Design allows for easy expansion for more inputs

Remote - Power Specs

- Assuming 90% idle and 10% transmit time
  - Average current darw of 85 mA for transmitter
- Other chips – about 5mA power draw
- Total of 90mA of current draw
- 4 AA batteries capable of running remote for more than 10 hours.

Wireless-Block Diagram



Scoring Section

- Input from user
- 74_192 Binary Counter
- 74_47 BCD Driver
- 7 Segment Display
- User can increase and decrease by ”1” value

Timing Section

- User Starts or Stops
- Direction can be switched on the counter
- 74_192 Binary Counter
- 74_47 BCD Driver
- 7 Segment Display
- 1 Hz Clock signal will come from uController
- Logic gates are used to handle minutes digit.
- Will be simultaneously built in uController

Digits

- Current Design:
  - 20 mA a segment
  - 6.5”
  - No additional engineering needed to interface to BCD Driver
- If current design does not need work
  - Additional MOSFETs will be used to safely control current on higher amperage displays.

Battery

- Sealed Lead Acid
  - Purchase a stock charger
  - Will be connected to various voltage regulators similar to a computer power supply
  - Fused for safety
- 12 V 10 AH.

Questions?