

Senior Design Proposal
October 9th, 2007

Self Scoring Cornhole Set

Paul Carlson
Christopher Devitt
Kathryn Jannazo
Thomas Martin
Christina McCool
Daniel Wolff



Vision

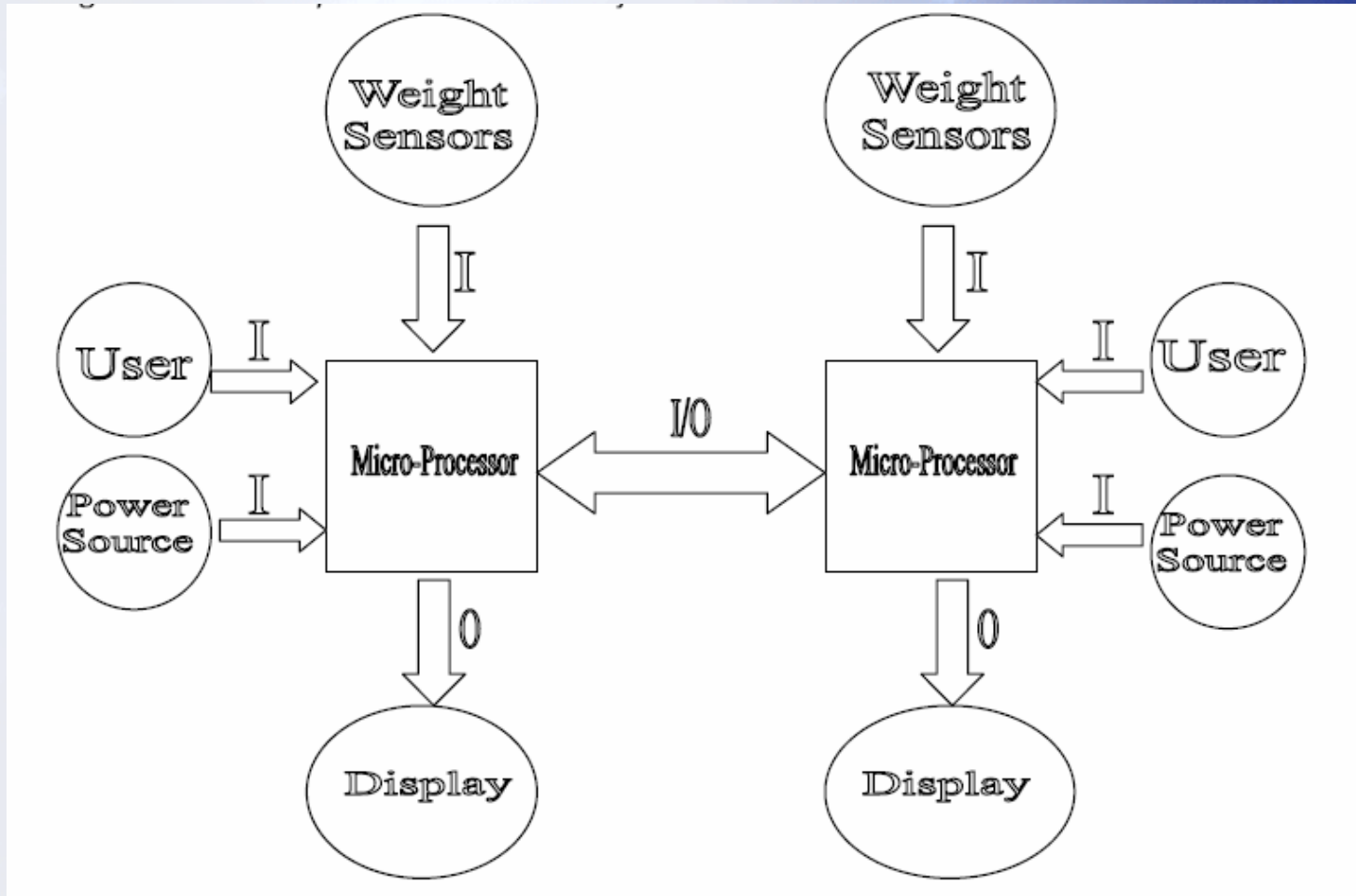
Improve existing game by digitizing the scoring.
More specifically...

- Determine the score for each round
- Display the current score electronically
- Communicate score between boards

Design Content

- Construction
- Sensing
- Scoring
- Displaying
- Communication
- User Interface
- Power

Functional Blocks



Construction

- Half-inch plywood w/ a scoreboard in the middle
- Plexiglas to cover the scoreboard
- Available technology for the scoreboard:
 - LED 7 Segment Display
 - Numerical LCD Display
 - Build our own LED Matrix

Weight Sensors

- Accurately sense the total weight of the bags on the board & in the hole
- Output result to microprocessor
- Available technologies
 - Load cells are devices which produce an output signal proportional to the applied weight or force
 - A weight scale in combination with a photoelectric sensor

Microcontroller

- Receive input from various sources
- Output score to display
- Communicate to other microcontroller
- Available technology for the microprocessor:
 - 18(L)F4620

Communication

- Wireless (most likely RF) link to communicate data between boards
- Low power, low bandwidth, low data rate
- Available technologies for the RF link:
 - ZigBee
 - Wibree
 - Bluetooth

User Interface

- Basic Functions
- Possible Additional Functions
- Available Technologies:
 - Keyboards
 - Keypads
 - Mouse
 - Switches
 - Touch Screen Technology

Power

- Need to supply power to many components
- Needs to be weather resilient, re-usable, long lasting source
- Available technologies for power sources:
 - Batteries
 - Need ability to recharge the batteries
 - Direct power supply

Conclusions

- Exciting opportunity to improve upon existing game
- Engineering challenge to integrate several systems
- Potential to market as a consumer product

The background of the slide is a stylized American flag. The top half features a blue field with white stars, and the bottom half features red and white stripes. The flag is slightly blurred and has a soft, glowing effect. A dark blue border frames the entire slide.

Questions?