SSKC RACEWAY SIGNAL AND CONTROL SYSTEM

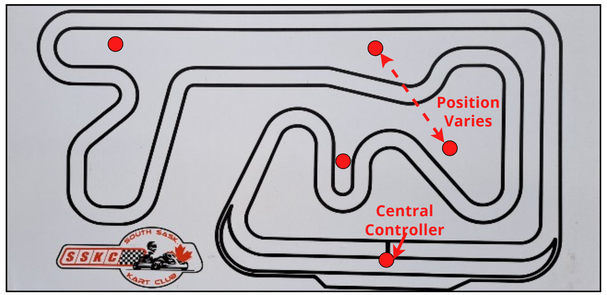
SAMUEL REDDEKOP, MICHAEL KING, LUCAS CARBONE LEPSCH - LEI ZHANG (ADVISOR)

University of Regina

FACULTY OF ENGINEERING & APPLIED SCIENCE

1. CLIENT STATEMENT

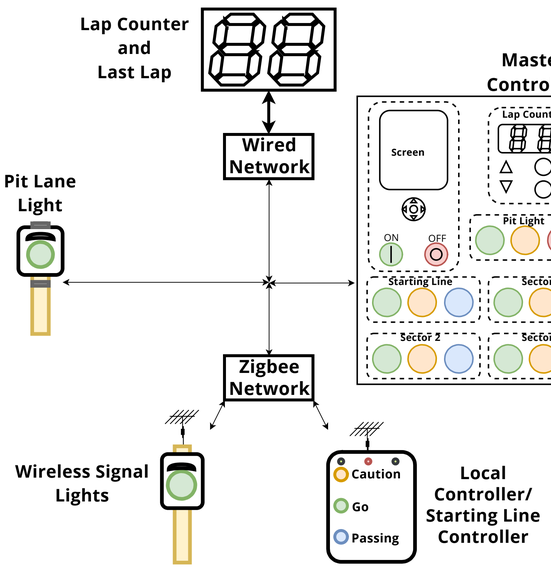
- Upgrade race day with electronic equipment
- Track lights with central and local control
- Centralized last lap/digital lap counter
- Handheld-controlled race start lights
- Energy-efficient, easy-to-fix design
- Track Lights Positioning



2.DESIGN CONSTRAINTS

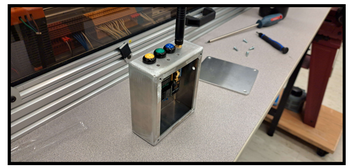
- Devices with 8-hour battery life
- Quick response under 1 second
- Summer weather durability
- Modular, repositionable setup
- Central and remote control capability

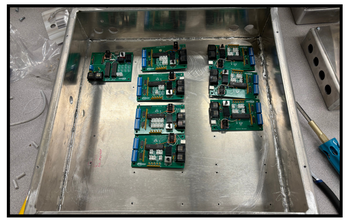
3. OVERALL SYSTEM DIAGRAM

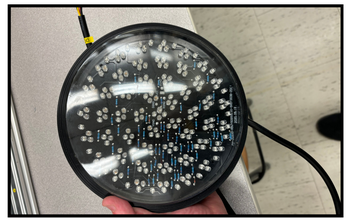


4. CIRCUITS AND ENCLOSURES ASSEMBLY

- Desgined several circuit boards to achieve project goals
- Implemented 3D models of enclosures to accommodate all circuits and provide modular controllers
- Manufactured enclosures provided by Dave Gulash, giving it a finished product look

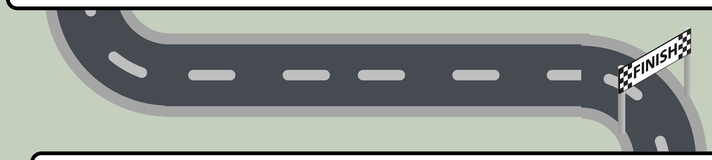






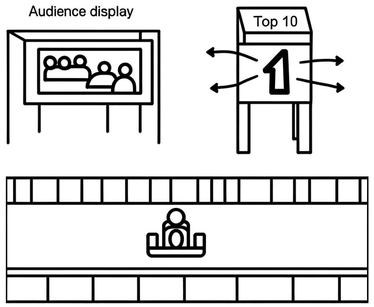
5. PROJECT RESULTS & OPERATION

- Starting Line Signals: Yellow = Hold, Green = Go
- Track Signals: Green = Clear, Yellow = Caution, Blue = Yield, Red = Stop
- Race Info: Digital display for mid-point, final lap, and lap count
- Communication: Radio effective up to 200m, delay meets specs.
- Data transfer ratio is around 99.9%



6.FINAL REMARKS & FUTURE EXPANSION

- Modernized control and signaling, low-power, quick-response design
- Effective at minimum of 200m, weatherproof improvements underway
- Future improvements include a display for the audience, and a top 10 drivers timing tower



Acknowledgments: Braden Massé, Dave Gulash, Dr. Irfan Al-Anbagi, Dr. Paul Laforge, Douglas Wagner