Team Blinky Lights - Blinky Lights

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Application Domain

Our project is a spherical persistence of vision (POV) LED display that can be used wirelessly with a Bluetooth equipped computer and our client application.

The client app allows easy presentation of text and images on the display.

Client Software

Main idea: Canvas

- 3D sphere shows pixels - can rotate
- Selectable colors
- Text field to easily display text
- Upload button to display the canvas on the actual device

Challenges and Accomplishments

Challenges

- Physics / balance
- Wireless communication
- New to working with HW (some team members)

Accomplishments

- Good planning allowed HW & SW software code to be developed independently and integrated seamlessly.

Technologies and Techniques

- Technologies
  - Java 1.8
  - Gradle Build Automation
  - OpenGL
  - Bluetooth (java serial library)
  - Arduino
- Project Management Techniques
  - Scrum

SCRUM

Iterative approach was ideal for our group

Sprints structured as follows:

- Plan out the HW & SW implementations of user stories at the first and divide into tasks (Sprint Plan)
- Team members complete HW & SW tasks of a user story independently
- Meet up to combine components of HW & SW together, then move on to next feature’s tasks.

Lessons Learned

- Hardware prototypes prone to breaking
- Metal spinning at 1800 RPM is dangerous!
- Bluetooth is SLOW
- Difficult to accurately predict how long programming tasks will take