Problem:
Dino Putt hole sensors, audio, special effects, etc. could use some additional sensing and diagnostics in order to make maintenance much more efficient.

Scope of Work:
- **Research existing control system** – The existing system is functional but lacks sophisticated diagnostics and troubleshooting. The system was designed with certain diagnostics in mind, but was never programmed. For instance, there is a fully functional and programmable graphical user interface that has basic startup and shutdown functions. There are two levels of complexity that will drive the project. First, there are many improvements that can be done that just involve software and hence little or no project costs. Second, there are many opportunities to add sensing devices to existing show equipment to help determine when show equipment is going to fail or has failed.
- **Develop Concept** – Determine high level concept and goals by working with original designers and GKTW maintenance staff. This includes high level review of current system capabilities.
- **Design** - Take concept to design, develop theory of operation, produce documentation, determine materials, determine equipment
  - Equipment selection
  - Develop Job Plan
  - Develop schedule
  - Develop documentation
- **Presentation** - Present project to EAC for design review, approval and funding
- **Installation/Implementation** - Purchase equipment, (if required) write software, test software.

Team:
- **Mentor** - Electrical or Controls engineering background. Should be familiar with Allen Bradley PLC’s including operator interfaces
- **Students** - Audio Engineering, Electrical Engineering, Mechanical Engineering
- **Instructor** - Prefer instructor well-versed in PLC’s

Anticipated Schedule: (16 weeks)
- **Research Phase** – 2 weeks
- **Concept Phase** - 2 weeks
- Design Phase - 2 weeks
- Presentation - 1 week
- Pre-Programming Phase - 4 weeks
- Testing Phase - 5 weeks

**Time Requirements:**

- 7 meetings - 1 to 3 hours per meeting