

## PROJECT IDEA SUBMISSION – **INDUSTRY**

### SPONSOR'S INFORMATION



### PROJECT NAME

Trade Show Pinball Machine

### GENERAL PROJECT DESCRIPTION

*Design and build a tabletop pinball machine for use in trade shows. The demonstration unit should utilize lights and motion featuring a large number of MISUMI electrical, mechanical and structural components to catch the eye of trade show attendees.*

### WHAT IS THE MECHANICAL ENGINEERING PROBLEM YOU ARE WANTING SOLVED?

*Design and build a tabletop pinball machine that utilizes many unique MISUMI components. These components can be either obstacles in the pinball machine itself, or for the exterior of the machine itself.*

### WHY IS THIS PROBLEM WORTH SOLVING? (i.e. what is the value proposition?)

*Students can get hands on experience with assembling and designing a tabletop demonstration using automation components. This project provides a large degree of creative freedom in visual aesthetic and functionality. If the students include automatic scoring or a time limit, they can also incorporate coding skills into the project.*

## WHAT ARE THE MOST IMPORTANT FUNCTIONAL REQUIREMENTS AND CONSTRAINTS FOR THIS PROJECT?

*Req 1: Standard 120V AC outlet or battery powered up to 8 hours charge.*

*Req 2: Utilizes as many MISUMI components as possible.*

*Constraint 1: Approximately 600mm x 350mm x 300mm maximum size.*

*Constraint 2: Designed to include a wheeled travel case and packing (less than 30 minutes for one person to assemble)*

## WHAT IS YOUR BEST ESTIMATE OF THE COST OF THE MATERIALS REQUIRED TO BUILD THE PROPOSED PROTOTYPE?

<\$2000

## HOW MUCH TIME AND EFFORT WOULD YOU EXPECT TO SPEND ON THIS PROJECT IF YOU WERE DOING IT INTERNALLY?

*Calendar Months: 3*

*Engineering man-hours: 600*

## DO YOU BELIEVE THE PROJECT CAN BE COMPLETED WITH EXISTING TECHNOLOGY? IF NOT, ELABORATE ON NEEDED DEVELOPMENTS?

*Yes, most of the components needed to make this can be ordered directly from the MISUMI website.*

## LIST KEY CHALLENGES THAT MUST BE OVERCOME OR THE UNKNOWN/RISKS ASSOCIATED WITH THIS PROJECT.

- Narrowing the scope of MISUMI's 25 million types of parts

## ATTACH ANY APPROPRIATE SKETCHES, DRAWINGS, DATA, PHOTOS, ETC. USEFUL IN JUDGING APPROPRIATENESS AND SCOPE OF PROPOSED PROJECT FOR ME SENIOR DESIGN.

*MISUMI Senior Design Proposal 2024 – Pinball.pdf*

**ARE YOU WORKING WITH PURDUE ME SENIORS WHO YOU WOULD LIKE ON THIS PROPOSED PROJECT?**  YES  NO (If YES, provide what information you can.)

NAME	EMAIL

**ARE YOU WORKING WITH PURDUE ME FACULTY WHO YOU WOULD LIKE ENGAGED WITH THIS PROPOSED PROJECT?**  YES  NO (If YES, provide what information you can.)

NAME	EMAIL

To submit this document for consideration, please complete the survey using either the QR code or the link below.



[https://purdue.ca1.qualtrics.com/jfe/form/SV\\_73w7nFHWpto9iOG](https://purdue.ca1.qualtrics.com/jfe/form/SV_73w7nFHWpto9iOG)

If you have any questions concerning a proposed project or completing this form, please contact Professor Greg Jensen.

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