

# Lederbord Project Proposal

## Company background

Lederbord is a startup which manufactures a portable, wireless, app-controlled scoreboard for multisport use by university club/IM sports departments. Lederbord has been operating for about 3 years, and is made of a team of ~6-8 people depending on needs. We have finished our first two production batches and sales of the Lederbord, and hope to begin the next one soon. Our product can be purchased via Amazon and our website. In addition, the IM sports department at Mines has purchased two of our boards, so you may have even seen them around! Check out our website, [www.lederbord.com](http://www.lederbord.com) , for more info!

## Project Description

The Lederbord hardware product runs via a Raspberry Pi embedded within the project. This Raspberry Pi runs the LEDs, however due to timing issues with the operating system, frames are dropped when an interrupt hits the CPU. For this reason we want to implement a realtime (non-preemptable) kernel in our product. In addition, the Raspberry Pi is difficult to update from our mobile application, so we would like to integrate some third party software to handle this for us. You will be helping to transition our Python based software to this new platform, and ensuring that the libraries we use operate on the platform correctly.

Please do not feel discouraged from selecting this project if you don't know anything about what was just said, this goal of this class is to learn new things. As a CS@Mines student myself, I am a technical person and understand these things fairly clearly. I intend to guide the team as much/as little is needed! I am also very familiar with Field Session, I took it Fall 2019!

## Desired Skill Sets/Learning

It is great if you have these skill sets already, if not, this is what you can expect to learn through the project!

- Raspberry Pi/Linux development
- Low level operating systems usage
- Python
- C/C++
- REST API communication
- Flask Web Server
- Some LED/hardware stuff

## Intellectual Property

All intellectual property will be maintained by Lederbord LLC. It will be necessary for you to sign a Nondisclosure Agreement at the beginning of the project

## Preferred Team Size

3-5 members

## Future Work

Yes! Lederbord is a small startup which has a lot of platforms to manage (two mobile apps and the actual device). We need developers!

## Location

Online