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Today’s Outline

- Recap: the InteLED’s vision
- System Diagram
- Current Status
- FPR Goals
- Demonstrations
The InteL-E-Ds Vision

- LED Music Controller
  - “Plug N’ Play” music from phone
    - Auxiliary
  - Calculate beats over time
  - Control LEDs to vibe with song

- Static Light Fixture in Room
  - Control LEDs with webUI “remote”

- Final Product Price < $200
The Big Picture

BeagleBone Black

Record → Play

Analyse → Beat Info

LED Control → output

Aux

Sound card

control options

webUI

RBG LED STRIPS

BLE

POWER LEDS

SPEAKER

LED

Control

Beat

Info

Record

Play

output

Bluetooth Low Energy
Current Status

- Each subsystem fully operational

- System functions with 90% accuracy using .wav files

- Live stream accuracy not optimal
  - Current analysis too computationally intensive for embedded device
  - Developing lighter beat detection algorithm
FPR Deliverable

- Live Stream Fully Operational
- Coordinating lightshow and song vibe (LED color choices)
- PCB for LED Modules
- Case for Device
- Specifications
  - Function for 30+ minutes
  - 90% beat detection accuracy
  - < $200
Demonstrations

- System Performance with .wav file
- System Performance with “Plug n’ Play”
- WebUI
Demonstration
WAV File | Analysis | Lightshow

Playback |

beat_array = []

Start Lightshow

Playback out of Sync
Demonstration
Live Music | Analysis | Lightshow

Record

song_array = []

Analyze

Playback

Beat_array = []

Playback in Sync

Start Lightshow
Demonstration
Questions?
Proposed CDR Deliverables

- Complete subsystems
  - Live stream functional
    - Auxiliary
    - Shairplay
  - Key Detection
- Integrate Systems
  - Coordinate live recording and analysis
  - Coordinate LED control with song playing
  - Additional webUI functionality
    - Couple lightshow modes
    - Buttons for specific colors