
JOLLY SNOWMAN
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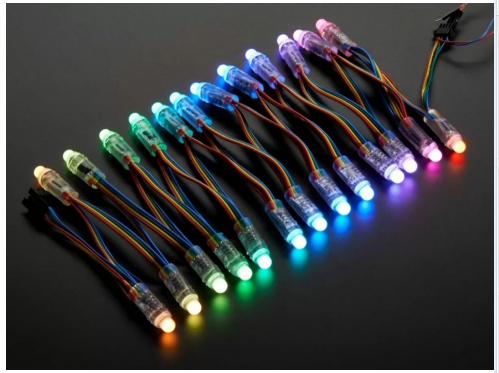
About Jolly Snowman

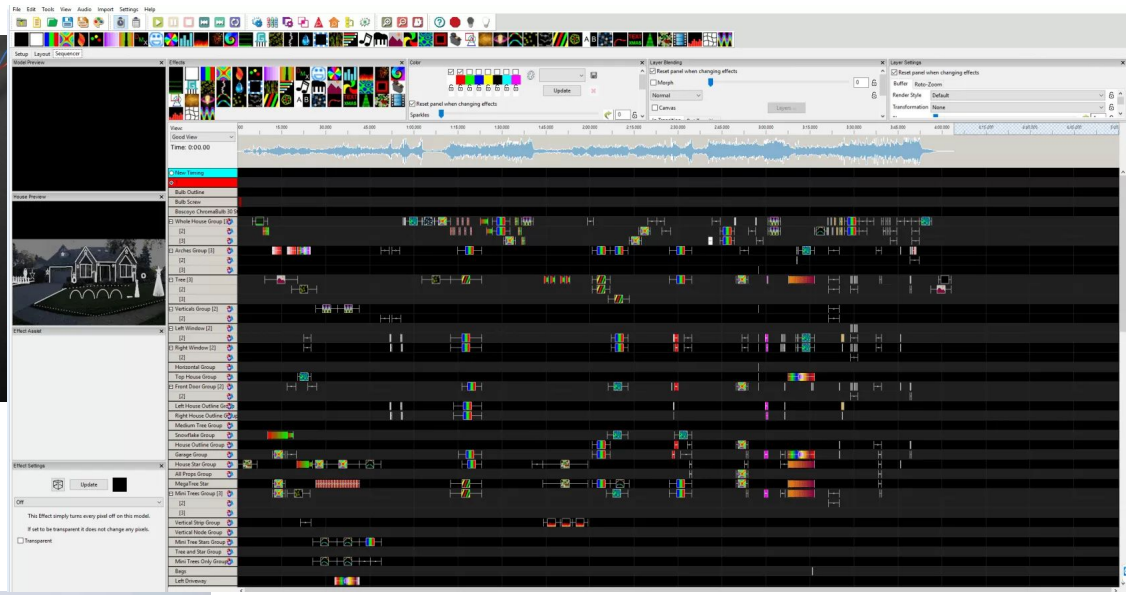
Complex Christmas Lights Displays:

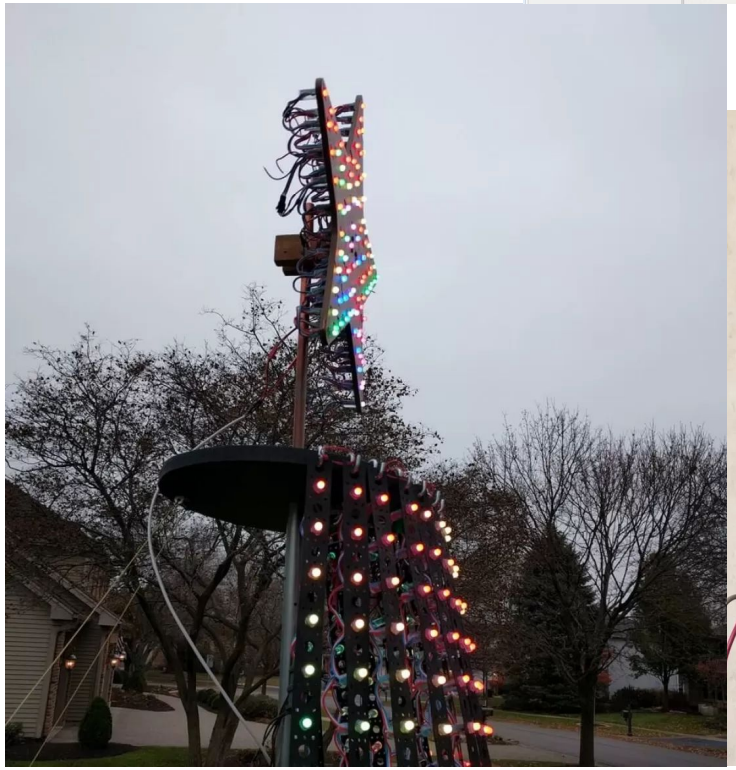
- Thousands of addressable LED lights
- Set to music or a custom radio channel
- Time consuming to map and program

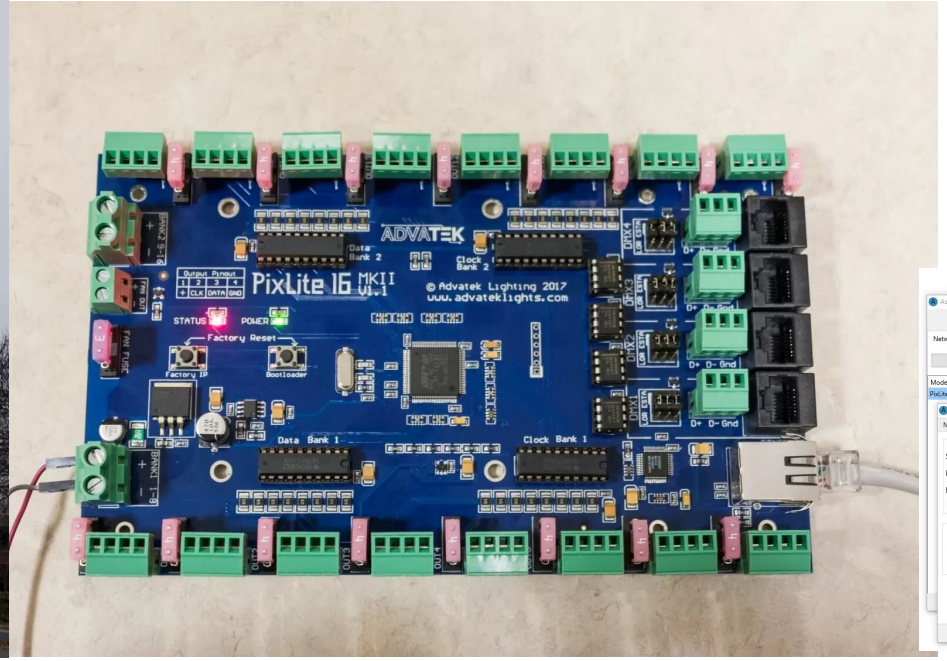
What's the purpose of Jolly Snowman?

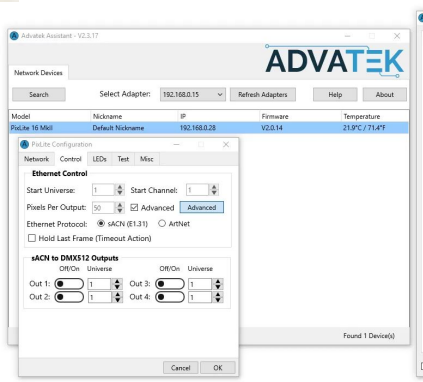
- Significantly reduce time and effort required to map lights, while increasing mapping accuracy
- Make customized lights displays easier and more enjoyable to create
- Spread the Holiday Cheer with more lights!

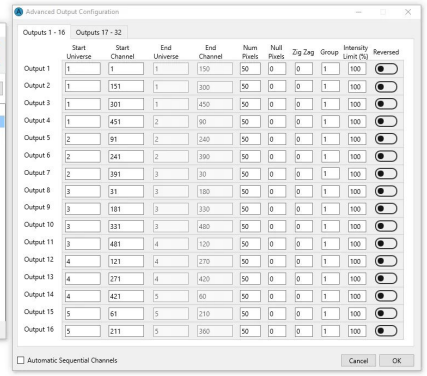












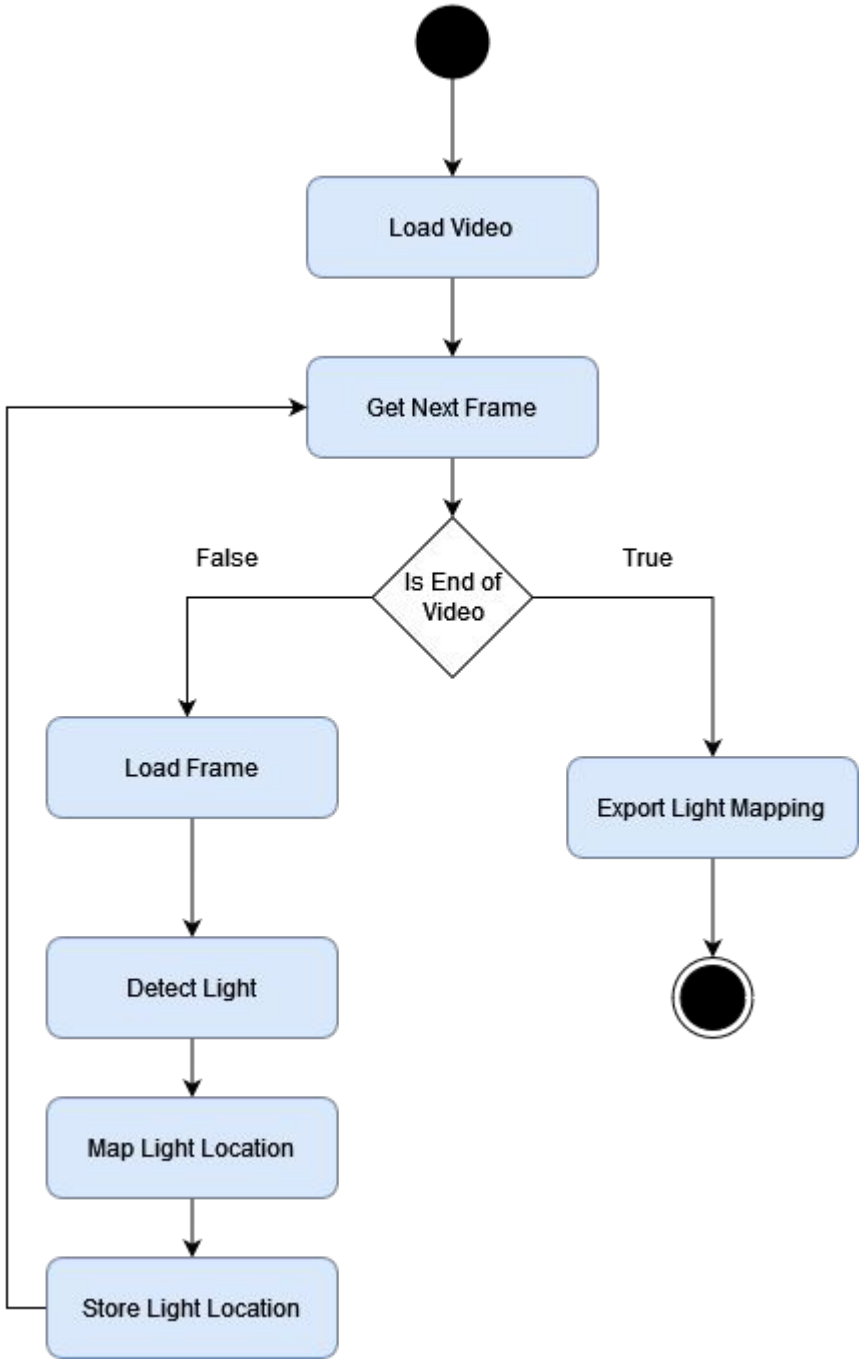
More About Lights...

Strands of RGB LEDs are individually addressable

Lights are mounted on the home or props

Light Placement, color and design are programmed in xLights

Software sends DMX commands to the light controller to illuminate the lights with pre programmed color.



Activity Diagram: Video Process

- User uploads the video file
- Video processing gets next frame
- Decision Point:
  - if reached the end of the video file, then export to Light Mapping
- If not end of video file then process loads next fram
- Process detects light
- Maps the light location
- Stores light location
- Gets next frame
  - loops back to decision point

Use Case: Live Capture

- **ID: #1**
- **Importance Level: Medium**
- **Primary Actor: User**
- **Use Case Type: Overview, Real**
- **Stakeholders and Interests:**
- **User – Wants to view the live feed from a remote camera**
- **Brief Description: This use case describes the configuration and connection of an IP camera.**
- **Trigger: User selects “Analyze Live Video Source” as the input for the program**
  - **Type: External**

Normal Flow of Events:

1. **User selects the “Analyze Live Video Source” option.**
2. **User configures the IP address settings to be the IP of the IP camera.**
3. **User selects “Connect to IP Camera”**
4. **The application connects to the camera and the live feed is displayed in the application.**
5. **The message “Connected” is displayed to the user.**

Alternate/Exceptional Flows:

4a. Application cannot connect to the camera

5a. Error message “Cannot connect to the selected camera” is displayed to the user

Requirements

Functional

1. The capture properties shall accept the IP of an IP Camera.
2. The system shall display the latest frame from the IP Camera.
3. The system shall notify user of the connection status to the IP Camera.

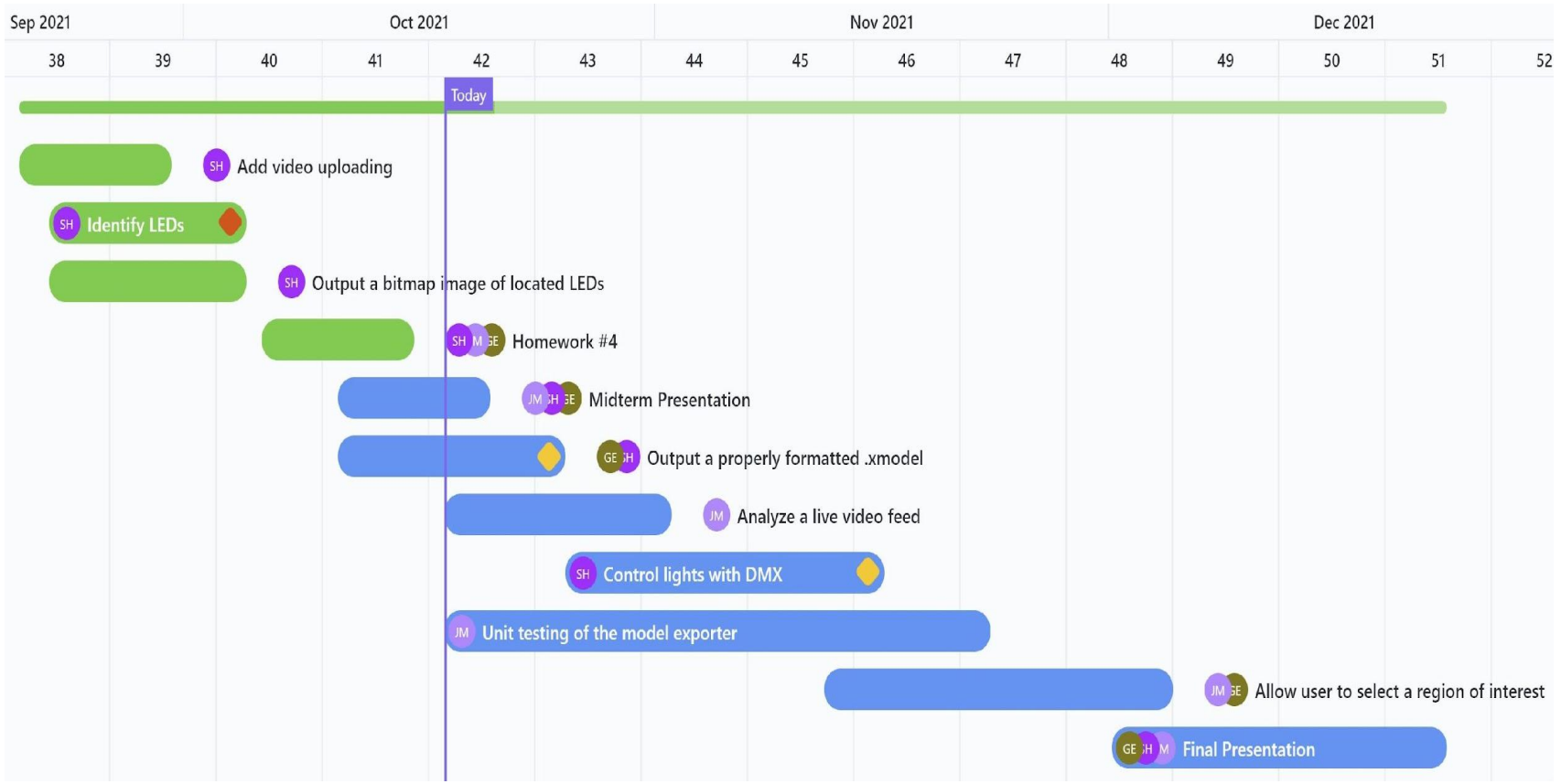
Non Functional

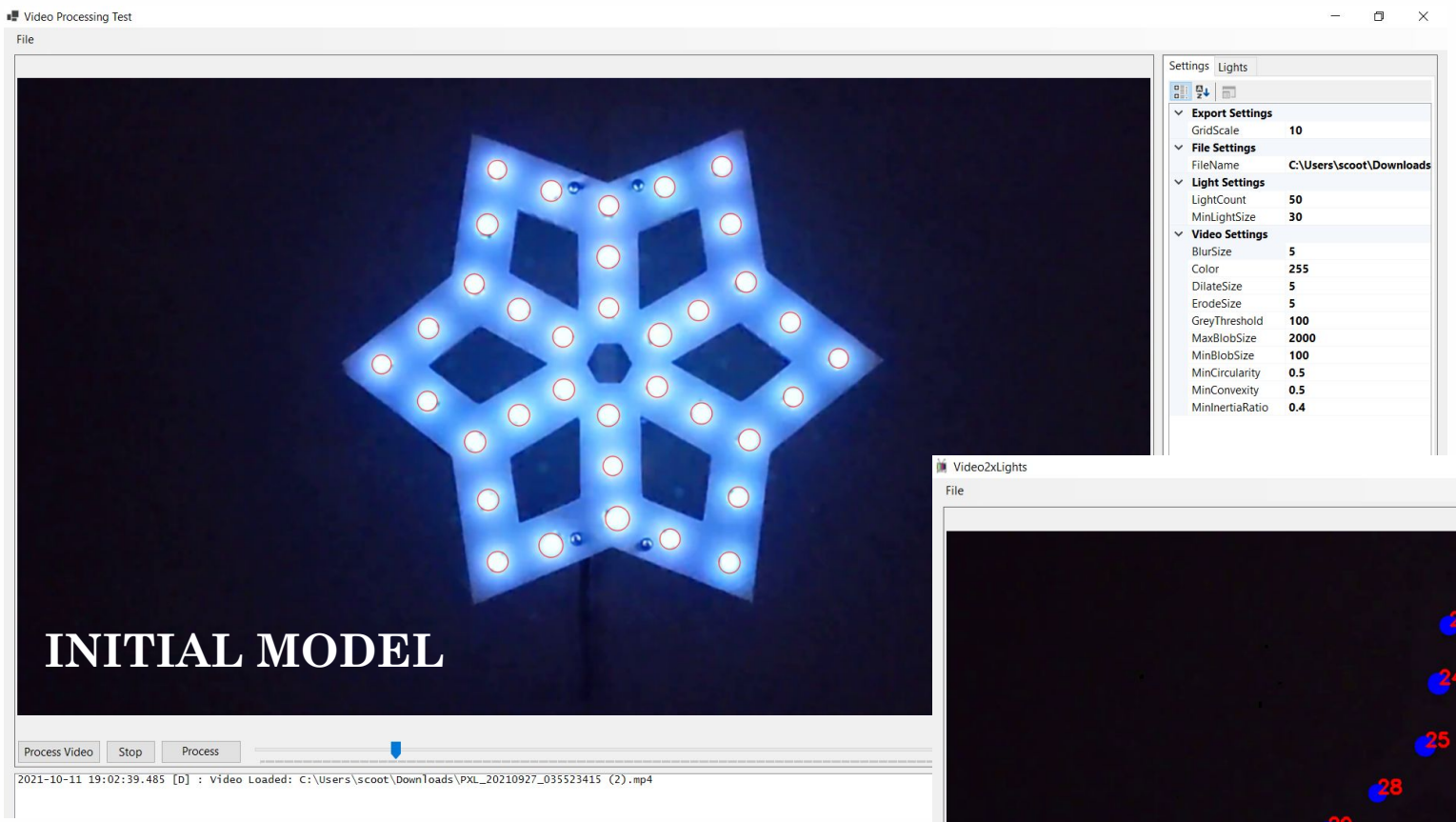
1. The system shall support 1080p video streams.
2. The system shall accept streams in the IP protocol.
3. The system should accept streams in the RTSP protocol.

Remaining

- Output a properly formatted xModal
  (SH, GE, 10/25)
- Control Lights with DMX
  (SH, 11/15)
- Analyze a live video feed
  (JM, 11/1)
- Unit Testing of the Image Analyzer
  (GE, 11/2)
- Unit Testing of the Model Exporter
  (JM, 11/15)
- Allow user to Select Region of Interest
  (GE, JM, 12/4)

Project Gantt Chart





Initial Model

- Found brightest spot of frame, but was not mapped or exported
- Circled the spot for ease of use, but circle did not persist

Current Implementation

- Maps the brightest spot of frame
- Writes the order number to the picture box for ease of use
- Exports to xLights in xModal format