Amazon - IR Blaster

CSE 115C, Spring 2020
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Release Plan

Amazon - IR Blaster, 2/24/2020 - 6/12/2020

High-Level Goals:

- Build a device that can receive and transmit an IR signal
- Build an interface that connects the hardware with the IR module to Alexa on the Raspberry Pi
- Build an Alexa Skill
    - That can read IR frequencies and remember the user-specified action.
    - That can organize the saved actions by device name (Living Room TV, Bedroom A/C, etc)
    - That recognizes the voice commands given to Alexa by the user and transmits the appropriate IR frequency.
- Build a network of infrared blasters.
- Build a classifier to classify remote model.

User Stories for Release:

Sprint 1 (Total Points: 55):

(2/24/20 - 3/6/20)

- **SPIKE Alexa Skills:** Understand how Alexa Voice Services communicates with Alexa cloud and how it all ties into making an Alexa skill.
- **SPIKE IR:** Understand how to read and write to IR Transceiver shield pins on the RPi.
- **User Story #1** (21 points)**:** As a developer, I want to be able to transmit and receive specific IR frequencies through the Raspberry Pi's IR module.
- **User Story #2** (34 points)**:** As a developer, I want to be able to build a basic Alexa Skill to test the communication between the Raspberry Pi hardware and the Alexa cloud.

Sprint 2 (Total Points: 68):

(3/9/20 - 3/20/20)

- **SPIKE AVS-LIRC Interface:** Understand how AVS works and how we can interconnect AVS running on the RPi to the Lirc code.
- **User Story #3** (34 points)**:** As a developer, I want a basic interface to save certain IR frequencies so that I can test the functionality of the IR transceiver.
- **User Story #4** (13 points)**:** As a developer, I want to have an interface that connects the hardware code that reads and transmits the frequency with the Alexa Voice Services software running on the RPi.

- **User Story #5:** (21 points): As a user, I want to be able to ask Alexa to go into training mode and set the hardware to read mode to receive IR signals.

Sprint 3 (Total Points: 68):

(3/23/20 - 4/3/20)

- **SPIKE AVS-LIRC Interface:** Understand how AVS works and how we can interconnect AVS running on the RPi to the LIRC code.
- **User Story #6:** (21 points): As a user, I want Alexa to recognize a command to perform a particular action from the saved set of actions.
- **User Story #7:** (21 points): As a user, I want to be able to ask Alexa to go into training mode.
- **User Story #8:** (13 points)**:** As a developer, I want to have a pipeline for continuous integration and delivery.
- **User Story #9** (13 points)**:** As a developer, I want to have an interface that connects the hardware code that reads and transmits the frequency with the Alexa Voice Services software running on the RPi.

Sprint 4 (Total Points: 42):

(4/6/20 - 4/17/20)

- **User Story #10:** (21 points): As a user, I want Alexa to ask me what to save a read signal as, and also to ask me the device the action is for.
- **User Story #11:** (21 points): As a user, I want Alexa to ask me for context when she is confused about a command.

Sprint 5 (Total Points: 21):

(4/20/20 - 5/1/20)

- **User Story #12:** (21 points): As a user, I want Alexa to look for existing configurations for my remote so that I don't have to manually record the remote actions myself.

Sprint 6 (Total Points: 55):

(5/4/20 - 5/15/20)

- **User Story #13:** (55 Points): As a user, I want to be able to set up a Wi-Fi network on my Alexa enabled device completely through voice.

Sprint 7 (Total Points: 34):

(5/18/20 - 5/29/20)

- **User Story #14:** (34 points): As a user, I want to be able to use multiple hardware boards across my house and interact with all of them using a central Alexa device.

Sprint 8 (Total Points: 47):

(6/1/20 - 6/12/20)

- **Final Testing and Overflow** (13 Points)
- **User Story #15:** (34 points): As a user, I want Alexa to view the remote I am holding and recognize existing configurations for my remote.

Product Backlogs:

- **User Story #1** (21 points)**:** As a developer, I want to be able to transmit and receive specific IR frequencies through the Raspberry Pi's IR module.
- **User Story #2** (34 points)**:** As a developer, I want to be able to build a basic Alexa Skill to test the communication between the Raspberry Pi hardware and the Alexa cloud.
- **User Story #3** (34 points)**:** As a developer, I want a basic interface to save certain IR frequencies so that I can test the functionality of the IR transceiver.
- **User Story #4** (13 points)**:** As a developer, I want to have an interface that connects the hardware code that reads and transmits the frequency with the Alexa Voice Services software running on the RPi.
- **User Story #5:** (21 points): As a user, I want to be able to ask Alexa to go into training mode and set the hardware to read mode to receive IR signals.
- **User Story #6:** (21 points): As a user, I want Alexa to recognize a command to perform a particular action from the saved set of actions.
- **User Story #7:** (21 points): As a user, I want to be able to ask Alexa to go into training mode.
- **User Story #8:** (13 points)**:** As a developer, I want to have a pipeline for continuous integration and delivery.
- **User Story #9** (13 points)**:** As a developer, I want to have an interface that connects the hardware code that reads and transmits the frequency with the Alexa Voice Services software running on the RPi.
- **User Story #10:** (21 points): As a user, I want Alexa to ask me what to save a read signal as, and also to ask me the device the action is for.
- **User Story #11:** (21 points): As a user, I want Alexa to ask me for context when she is confused about a command.
- **User Story #12:** (21 points): As a user, I want Alexa to look for existing configurations for my remote so that I don't have to manually record the remote actions myself.
- **User Story #13:** (55 Points): As a user, I want to be able to set up a Wi-Fi network on my Alexa enabled device completely through voice.
- **User Story #14:** (34 points): As a user, I want to be able to use multiple hardware boards across my house and interact with all of them using a central Alexa device.
- **User Story #15:** (34 points): As a user, I want Alexa to view the remote I am holding and recognize existing configurations for my remote.