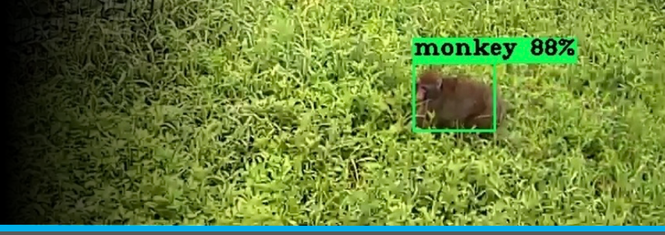
Hakusan Monkey Detect and Deterrent Project for AI Learning Platform



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Problem

Creating Education material to introduce and experience AI system programming and configuration to young students.

Hypothesis

- Easy to configure and control programing
- Using tile language and block type modules to execute programs and functions of the system
- Connecting the system to applications, hardware and software students are fond of

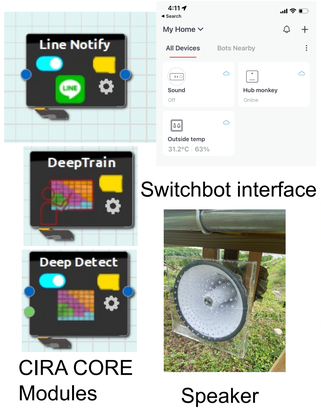
Project Overview

- Project was created during International College of Technology, Engineering Design 2A class Design thinking project. Students interviewed local farmers and care takers of fields around the campus and found a common issue with Monkeys. Typical fences and electrified fences did not deter the monkeys and farmers would lose a portion of the produce.
- From the results of interviewing and observations students concluded on creating a notification system and noise deterrent mechanism to scare the local monkeys away while leaning the capabilities of AI image recognition and how to use software to relay an alert message to local farmers.

Variables / Research

Image Recognition	Programming and interface	Supporting hardware and applications
• Yolo 4 tiny • Deep Train CiRA CORE • Deep DetectCiRA CORE	• CiRA CORE • Python/Java script programming language • Windows 10 pro • Rtsp multi camera connection	• Wyze Cam • Switchbot • Jackery Battery system and Solar panel • Wi-Fi router • Desktop PC • Line messaging App

Materials



CIRA CORE Modules

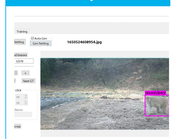
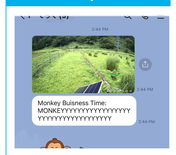
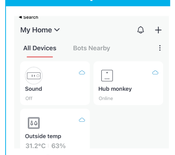
Switchbot interface

Speaker

Off the grid System and 4 cameras

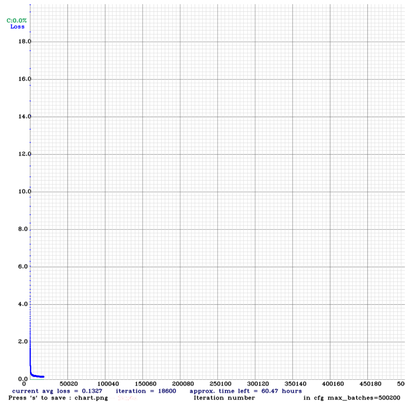
Rtsp feed 360 view on CIRA CORE

Activation Procedure

Step 1	Step 2	Step 3	Step 4
			
Train and create Model file on CiRA CORE	Rtsp Camera feed to CiRA CORE	Detected and Line message is sent to user	Sound is turned on through Switchbot application

Current model with 3 categories

- Current avg loss 0.1327
- Iteration 18600
- Approx. Time left 60.47 hours
- In cfg max_batches 500200
- Monkey, Human and Vehicle



Observations

- There is often False notifications from the system occur from poor image quality and contrast. More training will have to be done.
- 3 Categories was setup to clearly identify Human and Monkeys, but notification is only triggered on Monkey identification
- Young students ages 16 -18 years old can easily navigate CiRA CORE and use modules and add features

Conclusion

- CiRA CORE allows the Facilitator and Professor to easily connect hardware to software through the network.
- CiRA CORE allows student train, create model and execute image recognition on one interface.
- CiRA CORE allows for easy programming and execution.

Works Cited

- CiRA CORE application images and interface
- Line Application image
- Switchbot application interface image