

The background of the slide features a close-up photograph of a field of golden wheat ears, filling the frame with a warm, organic texture.

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The Cornfield Debugger: See & Squash

The Problem



Pests are a common problem in crops such as corn and soybeans as they can harm or even destroy the plants



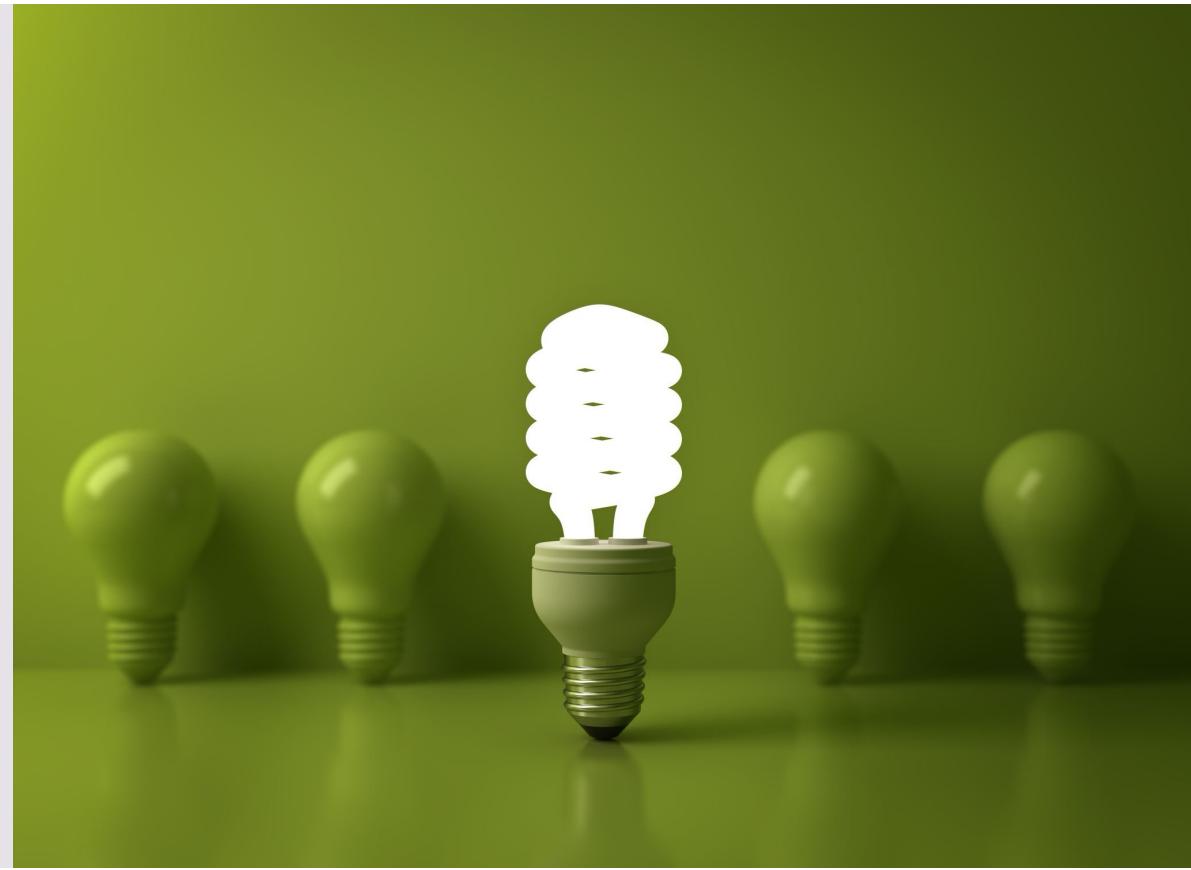
Our goal was to combat these dangerous/invasive species that can damage important crops essential to Illinois's agriculture and economy



Serves as a complement to John Deere's See & Spray

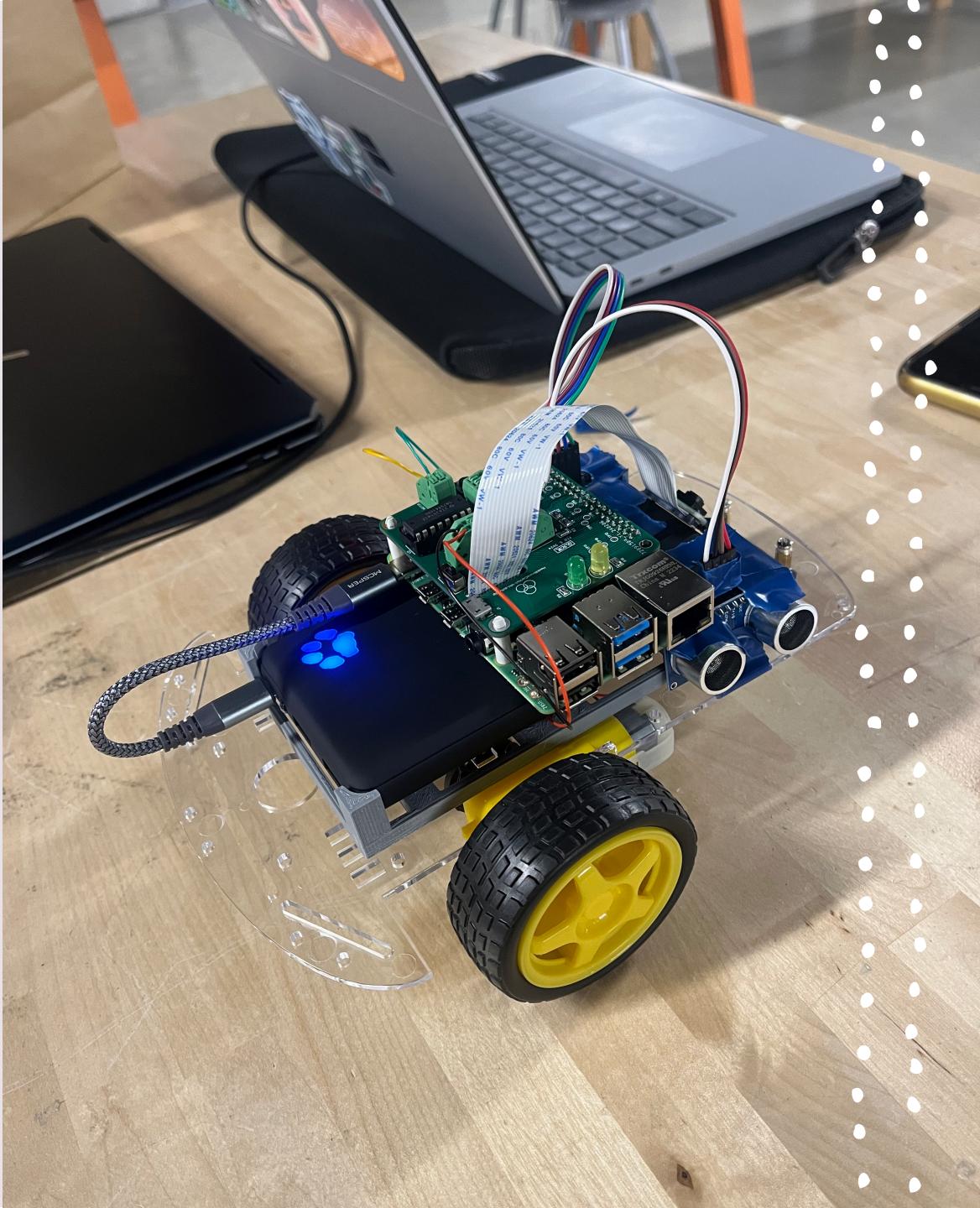
Our Solution

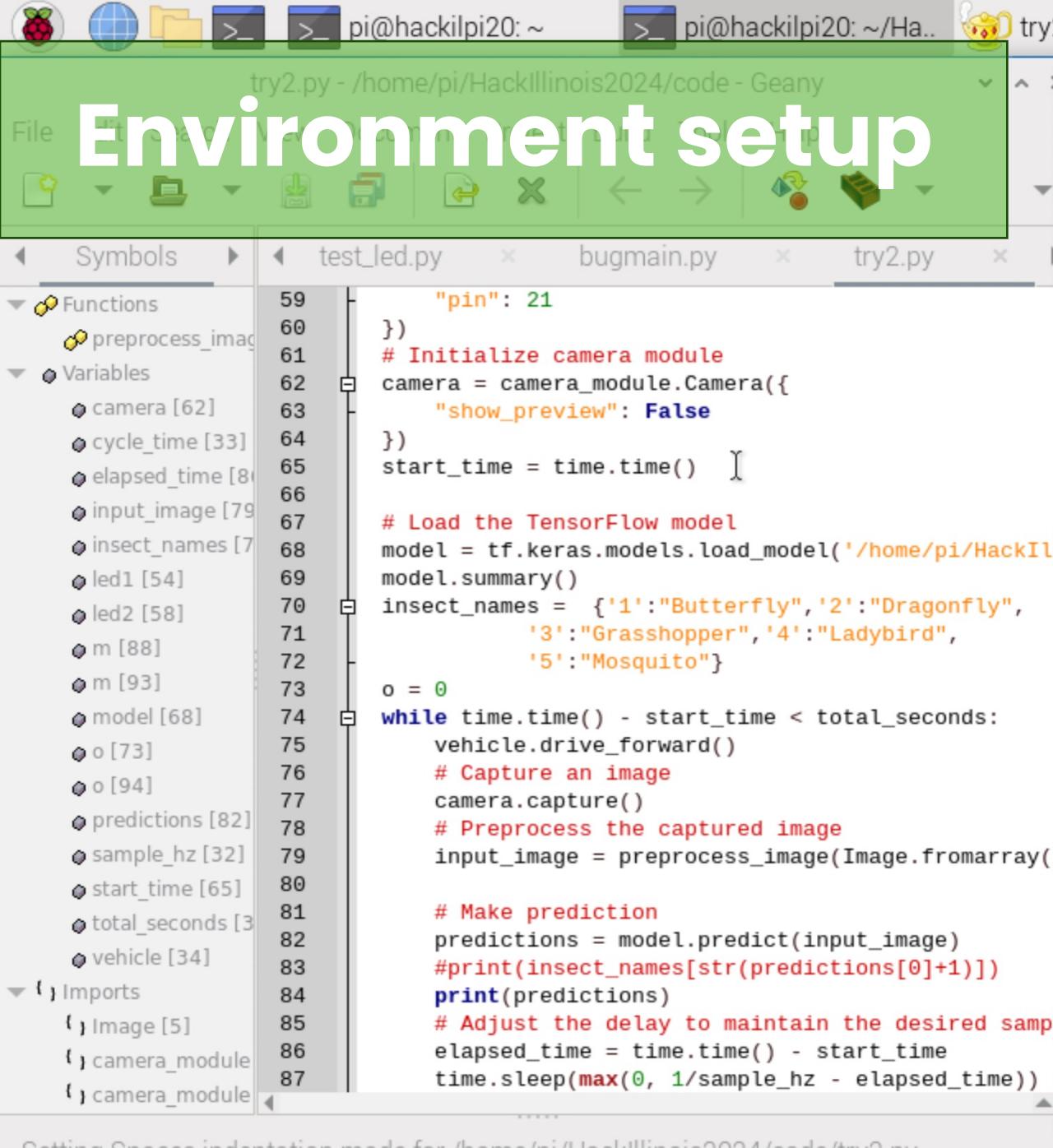
- An autonomous robot that detects the identity of insects in front of it and acts accordingly
- When it detects an unwanted pest:
 - LED yellow light flashes
 - Robot moves forward, "squashing" the bug
- When it detects a harmless insect:
 - LED green light flashes
 - Robot moves around the insect



Our Solution Cont.

- We utilized a TensorFlow model that is able to identify between 5 insect types: butterfly, ladybug, grasshopper, mosquito, and dragonfly
- Grasshopper, mosquito: pests
- Butterfly, ladybug, dragonfly: harmless
- Model was created by Rishi Rajak, <https://rishirajak.medium.com/>





```
pi@hackilpi20: ~/HackIllinois2024/code
File Edit Tabs Help
[[0.12136975 0.3874381 0.2228051 0.0283817 0.2400053 ]]
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1/1 [=====] - 0s 55ms/step
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1/1 [=====] - 0s 55ms/step
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1
(myenv) pi@hackilpi20:~/HackIllinois2024/code $
```



Thank you for listening, any questions?