

Using AI and Robotics to Entertain Cats

Student: Jack Storie
Supervisor: Fredrik Nordvall Forsberg



PROJECT DESCRIPTION

- Intelligent robotic toy designed using principles of robotics and AI
- Based on "catch the mouse" style toys available on the market
- Will use image recognition to evade cat/avoid obstacles
- Project based around the Raspberry Pi Zero W computer board
- Python programming language used



AIMS AND OBJECTIVES

MAJOR GOALS

- Implement movement of robot
- Implement basic AI object recognition
- House all components as compactly as possible within the robot

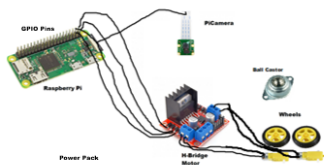
MINOR GOALS

- Implement more advanced object recognition algorithms to allow robot to adapt to its environment
- Create an aesthetically pleasing robot to the cat to increase cat engagement

STRETCH GOAL

- Incorporate machine learning techniques to allow robot to adapt to cat behaviour

TECHNICAL OVERVIEW



- [GpioZero](#) Python library used to work with motors for robot movement
- [PiCamera](#) Python library used for camera to capture visual input
- Image recognition provided by OpenCV real-time object detection

CURRENT PROGRESS

- Components sourced
- Individual component tests written and performed
- High level Python structure in place
- Corrupt SD Card halted progress



NEXT STEPS

Implement movement of robot

- Solder required components in lab
- Advance movement tests into interactive movement

Implement basic AI object recognition

- Improve operation of image recognition with movement algorithm

House all components as compactly as possible within the robot

- Create way of structuring components together