## Migration to Python 3

## Problem

The code to control the PiCar provided by Sunfounder is written in Python 2. We want to use Python 3 to allow the use of updated machine learning libraries and Python 3 is not backwards compatible with Python 2.

## Solution

The Raspberry Pis have python version 3.5.3 installed. While not the latest version, it is good enough for our purposes.

We considered using a tool that allows Python 2 code, which the dependencies are written in, to be run in a Python 3 interpreter. Another option is to port all code to Python 3. We chose the latter because it seemed quicker and less error-prone. We found that installing the Sunfounder dependency for Python 3 involves simply adding a flag to a build script which automatically translates the code to Python 3. Additionally, Sunfounder supplies a script that installs all of the dependences. Only small changes were made to this script to install the dependencies for Python 3. The python3 branch in the following repositories contain the mentioned changes:

<https://github.com/ehaskell1/SunFounder_PiCar-V>

<https://github.com/ehaskell1/SunFounder_PiCar>

<https://github.com/ehaskell1/SunFounder_PCA9685>

The changes were added with:

git clone -b python3 \

https://github.com/ehaskell1/SunFounder\_PiCar-V.git

cd SunFounder\_PiCar-V

sudo su

./install\_dependencies

exit

We also need grpcio and protobuf. pip3 installs them for python3.

sudo pip3 install grpcio

sudo pip3 install protobuf

Finally, our custom server code was ported to python 3 using a tool called 2to3 and with minor manual changes.

The server is now started by:

python3 picar\_driver.py

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