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1  """entry_detect.py | Robin Forestier | 28.03.2022
2
3  [WARN] The camera is placed on top of the door.
4
5  This file is used to detect entry and exit. It uses PersonneDetect & PersonneTracking.
6  """
7
8  # Imports
9  from datetime import datetime
10 import cv2
11 import requests
12
13 # import personally module
14 from sample.personne_detect import PersonneDetect
15 from sample.personne_tracking import PersonneTracking
16
17
18 def send(info):
19     """Send the data to the server
20
21     :param info: the information to send
22     :type info: int
23     """
24
25     # It's getting the current time.
26     t = datetime.now()
27     current_time = t.strftime("%H:%M")
28
29     # It's opening the file /sys/class/thermal/thermal_zone0/temp and reading the
    temperature.
30     try:
31         with open('/sys/class/thermal/thermal_zone0/temp', 'r') as ftemp:
32             temp = int(int(ftemp.read()) / 1000)
33     except OSError:
34         temp = 0
35
36     # It's creating a string that will be sent to the server.
37     data = "{}{:03d}{}".format(current_time, temp, info)
38     data = {'data': '$,RPWCSD,{:03d},{},0*'.format(len(data), data)}
39
40     try:
41         # It's sending the data to the server.
42         # Change the url to your own server.
43         r = requests.post("http://172.16.32.133/camera", data=data, timeout=0.5)
44
45         # This is checking if the status code is bigger than 299. If it is, it's
        printing an error message.
46         if r.status_code > 299:
47             print("[Error] Communication error, code : ", r.status_code)
48         else:
49             # It's getting the data from the server.
50             data = r.text
51             # if the data is a correct trame ($,...,*)
52             if data[0] == "$" and data[::-1][0] == "*":
53                 data = data.split(',')
54
55                 # Communication OK
56                 if data[1] == "RPWCOK":
57                     print("ok")
58                 # Communication Error
59                 if data[1] == "RPWCER":
60                     print("[ERROR] The cam had send a bad trame.")
61
62             # It's catching the error if the server is not available.
63             except requests.exceptions.RequestException as e:
64                 print(e)
65
66
67 if __name__ == '__main__':
68     # It's opening the webcam.
69     cap = cv2.VideoCapture(0)
70

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71 # It's creating a PersonneDetect object and storing it in the variable `detect`.
72 detect = PersonneDetect()
73 # It's creating a PersonneTracking object and storing it in the variable
74 `tracking`.
75 tracking = PersonneTracking()
76
77 while True:
78     # It's getting the frame from the webcam.
79     ret, frame = cap.read()
80
81     # It's resizing the frame to 640x480.
82     frame = cv2.resize(frame, (640, 480), interpolation=cv2.INTER_AREA)
83
84     # It's detecting people in the frame.
85     frame = detect.personne_detect(frame)
86     # It's calculating the centroid of the detected people.
87     tracking.calc_centroide(frame, detect.detected)
88
89     inouts = tracking.inout
90
91     for inout in inouts:
92         if inout == 1:
93             print("[INFO] Entrée")
94             send(inout)
95         else:
96             print("[INFO] Sortie")
97             send(inout)
98
99     tracking.inout.clear()
100
101     # It's showing the image in a window.
102     cv2.imshow("image", frame)
103
104     t = datetime.now()
105     print(t.strftime("%H:%M"))
106
107     # It's checking if the user press the key "q". If it is, it's breaking the
108     loop.
109     if cv2.waitKey(1) == ord("q"):
110         break
111
112     # It's closing the webcam and the window.
113     cv2.destroyAllWindows()
114     cap.release()

```