

# Project Name: Face Recognition Attendance System

**Introduction:** The project is about Face recognition based Attendance System. By using this system, attendance can be taken simply facing the camera. This system has the ability to detect any face and based on training data it can recognize and register the attendance for that student. It is very simple and easy way to take attendance in any class using this system. And it is a very secure and accurate system.

## **Sample Data:**

Sample Images:



Class:

Gulam Kibria

Emon

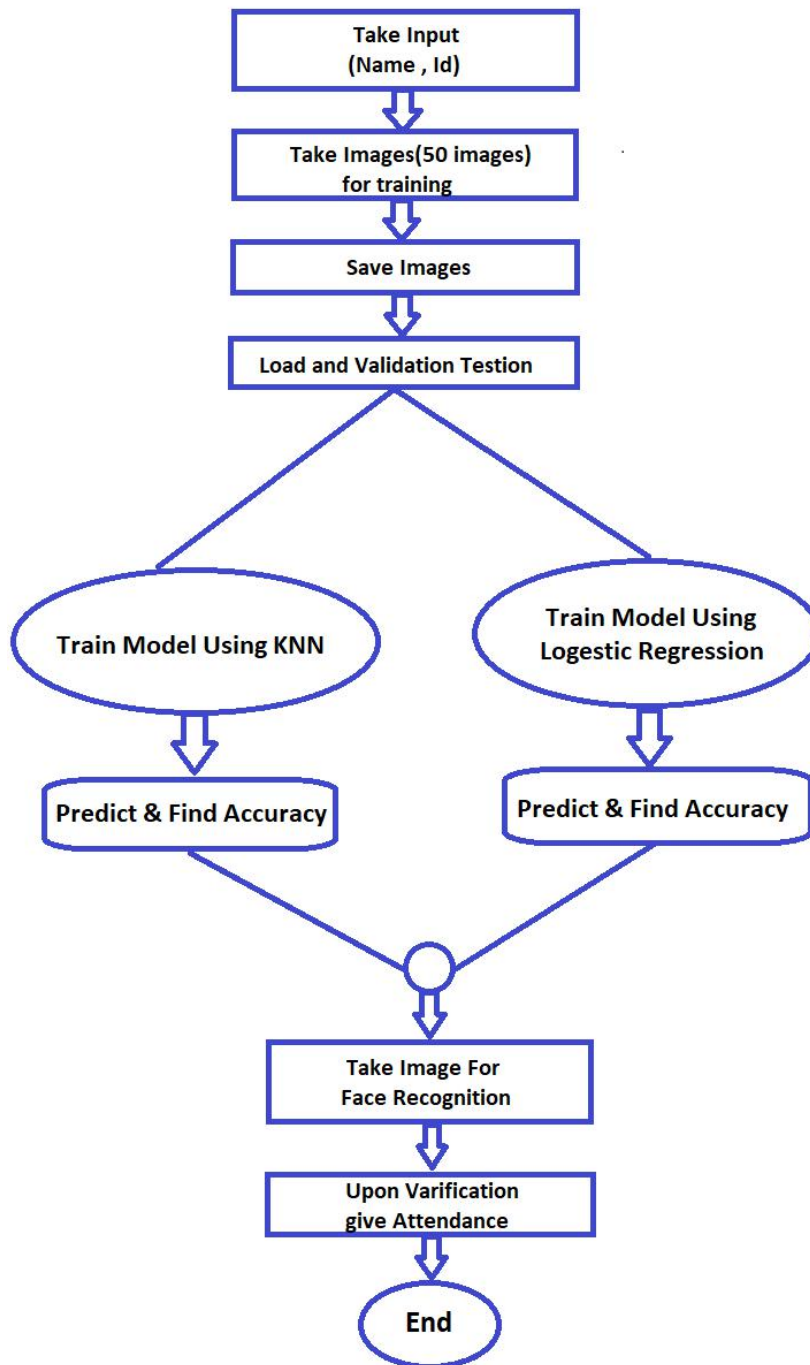
Abu Hanif

Arif

Nowrin

**Description:** The used system is very simple. Simple steps are used in very effective way. Here is a flowchart describing the steps ---

### FlowChart

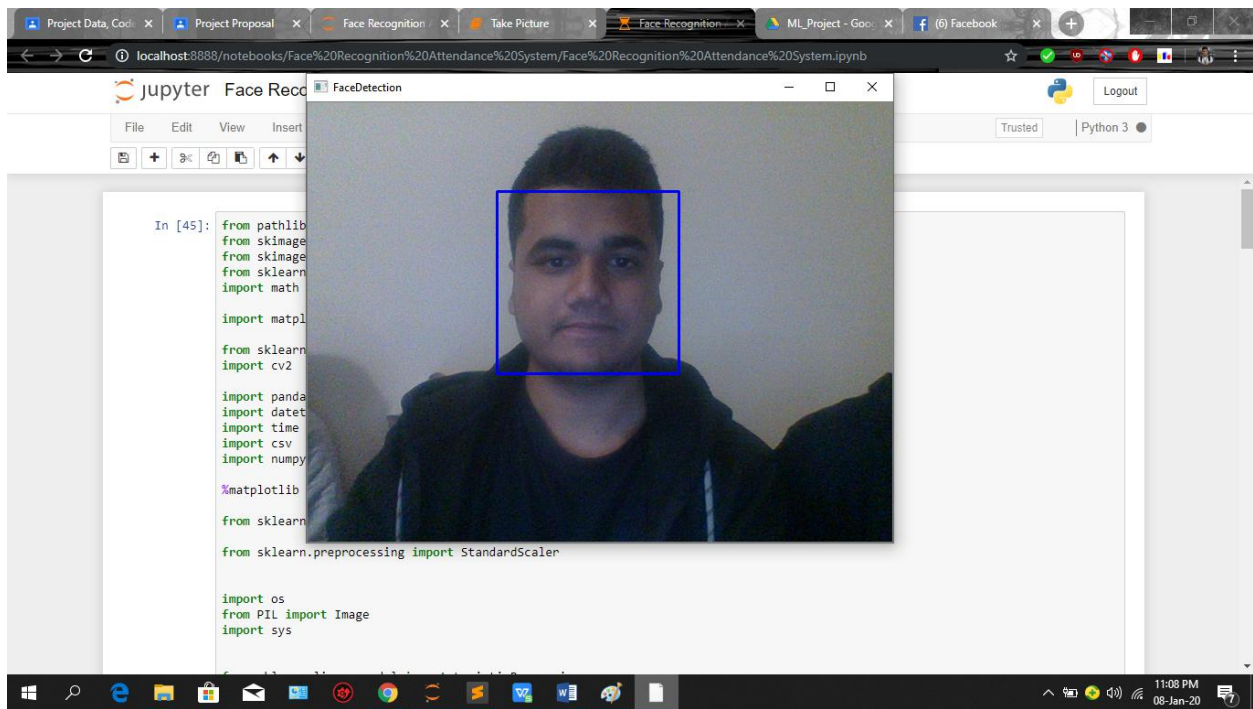


**Results:** Here we used 2 algorithms to predict the face. They are –

1. Logistic Regression. (Accuracy: 98.26 % (Approx.))
2. K-Nearest Neighbor. (Accuracy: 92.34 % (Approx.))

**Challenges:** Though we claim our system is accurate but for achieving the accuracy we had to go through some challenges. The most frequent ones were the change of environment during taking the photos. We had to adjust our algorithm to the required state to get the accuracy. Another challenge was creating csv file and input data into it directly from code for recording the attendances. We still have some difficulties in the system. But we are certain that we can overcome the remaining challenges.

### **Screenshots:**



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## Logistic Regression

```
In [49]: logreg = LogisticRegression()
logreg.fit(X_train, y_train)
y_pred = logreg.predict(X_test)
print(y_pred, len(y_pred))
print(math.ceil(metrics.accuracy_score(y_test, y_pred)*100), '%')

H:\an\lib\site-packages\sklearn\linear_model\logistic.py:433: FutureWarning: Default solver will be changed to 'lbfgs' in 0.22.
Specify a solver to silence this warning.
FutureWarning)
H:\an\lib\site-packages\sklearn\linear_model\logistic.py:460: FutureWarning: Default multi_class will be changed to 'auto' in
0.22. Specify the multi_class option to silence this warning.
"this warning.", FutureWarning)

[15  0  4 16  4 10 30 30 19 22 17 17  5  6 21 27 12 18 19 21 28 23  8 11
 23  2  7 11 24  7 11  9 10  3 25 15 24 27 28  1 28  5  5 27  0  5 20 22
 2 22  8  4 28  5 11 14 12  6  1 15 10 15 23 29  0  4 18 23 15 30 26  0
 7 18 11  3 24 27  3  5  5  8  7 11 11 22 15 26  9  3  0 11  6  8 16 10
 24  4 22 18 18 21  9  4 30 25 24 25 29 19  7 26 13 16 20 22 24 25  9 25
 23 13 19 10 11 14 20 14  2 28  3 12 14 30  6 14  4  8  1  4 16 20 29  1
 7 27 23 12  7 18  3  5 15 10  9  7  1 14 22 27 22 17  1 20 18  5 23  1
 28  8 18  1 10  4  8 16 22 22 26 16  0 29 25 27 21 15 26  5  3 28 25 19
 23 10 10 15 20  1  7 12 26 14 27  4 20 10 15 11  4  0 12 15 16  4 27  0
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 26  6  3  2  3 10 21 29  3 20 17 19  7 26 28  1 11 26 18 21 14 17 30 17
 25  6 13 17 26 21 18 16  4 19 10 27  8  8 26  3 29  3 29 22  1 14  1  2
 20  8  6 10  2 23 16 12 23 14  0  6  2 18  9 21  8 21 22 14 26] 309
100 %
```

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```
26  6  3  2  3 10 21 29  3 20 17 19  7 26 28  1 11 26 18 21 14 17 30 17
25  6 13 17 26 21 18 16  4 19 10 27  8  8 26  3 29  3 29 22  1 14  1  2
20  8  6 10  2 23 16 12 23 14  0  6  2 18  9 21  8 21 22 14 26] 309
100 %
```

## K-Nearest Neighbors (KNN)

```
In [58]: knn = KNeighborsClassifier(n_neighbors=21)
knn.fit(X_train, y_train)
y_pred = knn.predict(X_test)
print(y_pred)
print(math.ceil(metrics.accuracy_score(y_test, y_pred)*100), '%')

[17 22  1 30 16 27 28 12 28 29 26 22 14 12 22  6 18 30 15 27  2 29 19 19
 3  2 20  2 13 11  2  9 20 29  7 13 22 24 16  6 26  3 15 13 18 13  6 26
14 16 26 26  7 30 24 11 24 28 28  1 14 16 13 14 23 30 30 10 22 21 16  1
20  8 10 10  4 15 16  5 20 16  2 10 26 24 10 23 10 25 24 29 14  0 23  4
18  5  7 20 14  5 17 18 16 28 18  2  5  8 27  8  7 25 28  9 10 10 11 20
2 12 24 15 23 21  6  5 24 24 29  3  4 23 11  5 21 24  1 16 28 15 22 27
6 27 19 11  8 22 15 25  5 30  3 26 17  6 23 29 19 27 21 23  5 22 23 18
30  2  8 14 24  9 18 25 16 14 15  6  0 27 24 20  0  7 10 22 23 16  6  5
16 22  1 12 15 23  8 29  8 28  9 12  7 28 23 25 20  3  4  0 24  0 20 27
29  5  5 27 10 10 12 19 12  2  8 15  8  4 29 26 11  5 18 28  1 10 23 30
 9  5 15  8 11  8 26 18  1 14 20 21 19 22 19  7 14  5 16 29 11 20  4  4
30 15 19 10 29  5 23 23  6  6 28 16 27 23  5  8 19  2 27  4 18  0 28 22
17  7 22 14 22 26 17 16  8 14  9  7 20 26 24  3 24 13  8 10  8]
89 %
```

```
In [51]: faceCascade = cv2.CascadeClassifier('haarcascade_frontalface_default.xml')#xml file for face detection
```

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### Prediction

```
In [40]: y_pred = logreg.predict(test_x)
print(y_pred)
#test_y=[4,4,4,4,4,4,4,4,4,4]
#print(metrics.accuracy_score(test_y, y_pred))
[7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7]
```

```
In [41]: y_pred=np.array(y_pred)
counts = np.bincount(y_pred)
v=np.argmax(counts)
```

```
In [42]: name_id=image_dataset.target_names[v]
```

```
In [43]: student=[]
for j in name_id.split('_'):
    student.append(j)
print(student)
['GulamKibria', '170103020033']
```

```
In [44]: col_names = ['Id','Name','Date','Time']
attendance = pd.DataFrame(columns = col_names)
ts = time.time()
date = datetime.datetime.fromtimestamp(ts).strftime('%Y-%m-%d')
timeStamp = datetime.datetime.fromtimestamp(ts).strftime('%H:%M:%S')
aa=student[0]
Id=student[1]
```

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A2 170103020033

	A	B	C	D	E	F	G	H	I	J	K
1	Id	Name	Date	Time							
2	1.701E+11	GulamKibria	2020-01-08	20:56:22							
3											
4											
5											
6											
7											
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9											
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Attendance\_2020-01-08-20-56-22

Sum=1.70103E+11 Average=56701021291 Count=4

160%