(DROWSINESS DETECTION SYSTEM)

1). What/Why/How parts:

What:

1. **A Drowsiness Detection System is a application that analyzes a person's behavior to determine if they are experiencing fatigue or drowsiness.**
2. **Real- time monitoring of the person's behavior.**
3. **Audio or visual alerts to notify the person of their drowsiness.**
4. **This System is a Web Application which can be accessed using LAN.**
5. **This Application can get the data from various sources such as IP Camera, wired camera (web cam) , online source.**

Why:

1. **Drowsiness detection systems can help ensure that individuals are alert and awake while operating machinery,driving or performing other tasks that require vigilance.**
2. **Drowsiness detection systems can collect valuable data on sleep patterns and fatigue,which can be used to improve workplace policies and practices.**
3. **A drowsiness detection system can improve safety by preventing accidents.**

How:

1. **Backend : Features**
   Face Detection
   Drowsiness Detection
2. **Frontend : Interface**
   Web Application

2). Features Created with python

1. Create Virtual Environment in C drive.
2. Activate the virtual environment every time you use it.
3. Install the Packages:
   Opencv
   Scipy
   Pillow
   Tensorflow
   Playsound
4. =import cv2

```
from keras.models import load_model
import numpy as np
facemodel=cv2.CascadeClassifier("face.xml")
drowsinessmodel = load_model("model.h5",compile=False)
vid=cv2.VideoCapture("video.mp4")
i=1
while(vid.isOpened()):
flag,frame=vid.read()
  if(flag):
     pred=facemodel.detectMultiScale(frame)
     for (x,y,l,w) in pred:
        face_img=frame[y:y+w,x:x+l]
        face_img=cv2.resize(face_img,(224,224),
interpolation=cv2.INTER_AREA)
        face_img=np.asarray(face_img, dtype=np.float32).reshape(1, 224,
224, 3)
        face_img=(face_img / 127.5) -1
        pred=drowsinessmodel.predict(face_img)[0][0]
        if(pred>0.9):
           cv2.rectangle(frame,(x,y),(x+l,y+w),(0.255,0),4)
        else:
           cv2.rectangle(frame,(x,y),(x+1,y+w),(0,0,255),4)
     cv2.namedWindow("my window",cv2.WINDOW_NORMAL)
     cv2.imshow("my window",frame)
     k=cv2.waitKey(0)
```

```
        if(k==ord('x')):
            break
    else:
        break
cv2.destroyAllWindows()
```

3). Streamlit Code

= import streamlit as st

To set the title and image of the streamlit app's webpage - st.set_page_config()

To set the title - st.title

To create a side bar - - st.sidebar.header()

To add image in a side bar - st.sidebar.image()

To write something - st.write()

To create horizontal line - st.markdown('<hr style="border: 2px solid #000000;">', unsafe_allow_html=True)

To select an option - st.sidebar.selectbox()

To change theme - create a file config.toml in .streamlit

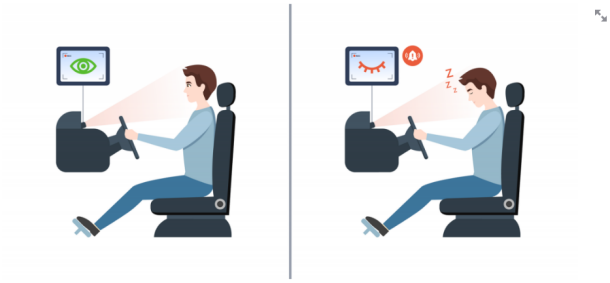
To erase streamlit tag - st.markdown("<style>{visibility: hidden;}footer {visibility: hidden;}</style>",unsafe_allow_html=True)

4). Screenshot of Streamlit

DROWSINESS DETECTION SYSTEM

My Menu

Home

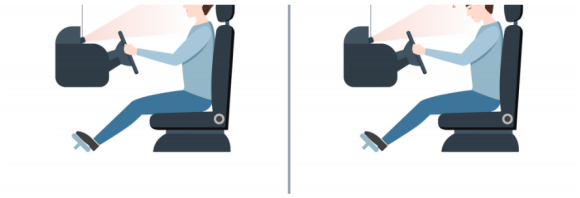


WELCOME

Dashboard

Select an option

Click Here



WELCOME

Drowsiness detection system is an advanced technology that uses machine learning algorithms to analyze driver behavior and detect signs of drowsiness or fatigue, helping to prevent accidents on the road.

Dashboard

Select an option

Click Here

- Click Here
- About Drowsiness
- App Features
- App Uses
- Feedback

25°C
Cloudy

About Drowsiness

Drowsiness is a feeling of sleepiness or fatigue that can occur due to various factors such as lack of sleep, medication side effects, certain medical conditions, or boredom. It can lead to difficulty concentrating, slower reaction times, impaired judgment, and decreased awareness of surroundings. Drowsy driving is a significant risk factor for accidents on the road, causing an estimated 100,000 crashes, 71,000 injuries, and 1,550 fatalities in the US each year. To combat drowsiness, it's important to get enough sleep, practice good sleep hygiene, and recognize the signs of drowsiness and take appropriate action. Technologies and methods such as sensors, wearable devices, and apps can help detect and prevent drowsiness in transportation contexts.

Select an option

App Features

A drowsiness app can be used to help detect and prevent drowsiness, particularly in transportation contexts. These apps use various sensors and algorithms to monitor the user's behavior and alert them if they appear to be getting drowsy. They can also provide recommendations for improving sleep quality, such as creating a comfortable sleep environment, establishing a consistent sleep schedule, and avoiding caffeine and alcohol before bedtime. By using a drowsiness app, users can reduce the risk of accidents on the road caused by drowsy driving and improve their overall sleep health.

Select an option

App Uses

A drowsiness app can be used to help detect and prevent drowsiness, particularly in transportation contexts. These apps use various sensors and algorithms to monitor the user's behavior and alert them if they appear to be getting drowsy. They can also provide recommendations for improving sleep quality, such as creating a comfortable sleep environment, establishing a consistent sleep schedule, and avoiding caffeine and alcohol before bedtime. By using a drowsiness app, users can reduce the risk of accidents on the road caused by drowsy driving and improve their overall sleep health

Dashboard

Select an option

Feedback

Share you Opinion

https://docs.google.com/forms/d/e/1FAIpQLSch-3QfM_ZwIX-HMF6Oazouqlp8vbGdT1G-pyI6kAtfIYRHig/viewform?usp=sf_link

DROWSINESS DETECTION SYSTEM

garimahere10@gmail.com Switch account

* Indicates required question

Email *

Record **garimahere10@gmail.com** as the email to be included with my response

Name *

Your answer

Email *

Your answer

Gender *

Gender *

- ◯ Male
- ◯ Female
- ◯ Prefer not to say

Is my application effective in detecting drowsiness?

- ◯ Yes, the application effectively detected drowsiness.
- ◯ No, the application did not effectively detect drowsiness.
- ◯ The application had some issues detecting drowsiness.
- ◯ The application was easy to use and understand.
- ◯ I would recommend this application to others.
- ◯ I would not recommend this application to others.

Comments

Your answer

Submit

Clear form

DROWSINESS DETECTION SYSTEM

My Menu

CAMERA

Select 0 for Primary Camera and 1 For Secondary Camera

None

Start Detection

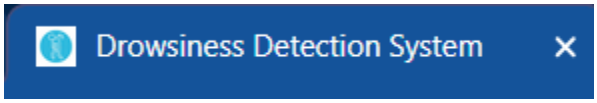
DROWSINESS DETECTION SYSTEM

My Menu

URL

Enter Video URL Here

Start Detection


Drowsiness Detection System