***New company Intro***

Firstly, thank you sir for short-listing me for the interview. I am Somil Dubey and I did my schooling from BCM school in Ludhiana and Currently I am pursuing B Tech from Thapar University in Electronics and communication branch. Inspite of that I am highly interested in coding as well as problem solving. My technical skills include programming in Python, C and C++.

I have used these skills to make few projects

First one being automatic solar based grass cutter which is automated grass cutter totally working on green energy, second one is snake game which is made using pygame module in python. Third one is Drowsiness detection, this project alert the driver in case he tends to be sleepy while driving and can help in preventing accidents.

Apart from my curriculum I also have interest in sports and won many medals in Athletics. I have represented Thapar athletics team in IIT Sports fest which is one of the biggest fests in North India at college level.

I have worked as a campus ambassador for the companies like Teachnook and Skolar.

During my work breaks I like trekking, mountaineering, playing cricket. These activities have shown me that fresh mindset can help in improving the performance and focus level for other activities.

I see myself as a people-oriented person and feels comfortable in talking and working with new people.

I am a person who thrives in a fast-paced environment and right now I am looking for an opportunity to apply my technical expertise along with my creative problem-solving skills to an innovative company like yours.

Lastly, I am a quick learner and believe in learning from my past mistakes. I believe it can help to take me ahead in both my professional and personal life.

Let me know if you want me to elaborate any specific part.

***Projects***

My first project is automated solar based grass cutter.

There are 2 main reasons

first increase in pollution and

second noise caused due to these fuel powered motors in traditional grass cutters

To prevent pollution our grass cutter will be the best replacement. This work on rechargeable batteries which will get energy from sun through solar panel. Main components of this projects are ESP-8266 module and GPS module. It is designed to work on any type on land.

Drowsiness detection project

As we know Drowsy driving results in many injuries and deaths so my intention is to develop a solution for drowsiness detection to prevent accidents.

This system consists of mainly 3 parts face detection, eye detection and eye closure detection. These actions are done using the machine learning libraries like cv2 and dlib libraries

First part of the project is to detect the face which is done using open CV library for video capturing and Dlib library for frontal face detection. Frontal face detection can also be done using cv2 library but the accuracy or face detector of Dlib library is more than normal haar\_cascade detector in open cv. That’s why I have used detector of dlib library.

Camera is used to detect the face of driver. If a face is detected in the video, then the 68 landmarks of the face is extracted using facial landmark detection using a pre trained shape\_predictor model of Dlib library. Now a days facial landmark is used for augmented reality like making snapchat filters. From there I extracted the Eye regions, through which I have computed the EAR that is eye aspect ratio to determine if the value E.A.R of eyes is below a certain E.A.R threshold. After many experiments it’s found that the 0.25 is the determined ratio for open eye. To improve accuracy and prevent the detection of normal blinking of eyes the comparison is done for a certain period of time. So, if the computed ratio is more than 0.25 then the driver is active. If it’s less than 0.25 but more than 0.21, then driver is feeling drossiness and if the ratio is less than .2 then the driver is sleeping. We can trigger an alarm to alert the driver.

This way we can prevent accidents happening due to sleepiness.

Snake game project

Snake and Apple game is made using Pygame library. This library is specially designed to making games in python using major concept like Event Loop, Sprites, image and sound insertion, changing colors and many other functionalities. Event loop is the infinite while loop which is important in almost every game. It keeps on running till it meet any key strokes like snake hit a wall or snake hit his tail or u click exit button and while using arrow keys.

### Tell me about a time when you failed and how you resolved it.

### Ans: - Since my high school I noticed that my grammar and English communication was now good. I was facing so much difficulties in giving speech or even speaking single line in English. So slowly-slowly I started to work on my grammar and tried to put confidence during conversation in English language. I would say I have improved a lot since my first year and now I am pretty much confident while talking.

### What is your strength

### Ans: - Initiative to start a conversation is my biggest strength. I prefer working in a group and I think that my collaborative nature is one of my strongest attributes.

### What is your weakness.

### Ans: - Sometimes, I avoid asking others for help because I feel bothersome. I have starting to realise that in order to learn new skills and balance my workload, it's often necessary to ask for help. To overcome this weakness, I am trying to be more confident about asking favours of others. I find that offering to help others also makes it easier for me to ask for help.'

Thankyou for short-listing me for the interview. My name is somil dubey. Currently pursuing B Tech from Thapar University in Electronics and communication branch. Inspite of that i am highly interested in coding as well as problem solving

I have made few projects

First one being automatic solar based grass cutter which is a automated grass cutter totally working on green energy and second one is Drowsiness detection, This project alert the driver in case he tends to be sleepy while driving and thus preventing accidents.

Apart from my curriculum I also have interest in sports and won many medals in Athletics. I have been to IIT delhi for some competitions as well.

During work breaks I like trekking and mountaineering. This activity has shown me that good strategy, consistency and determination can help to overcome any obstacle.

I see myself as a people-oriented person and feels comfortable in talking and working with new people.

I am a person who thrives in a fast-paced environment and right now I am looking for an opportunity to apply my technical expertise along with my creative problem-solving skills to an innovative company like yours.

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As we know Drowsy driving results in many injuries and deaths so my intention is to develop a solution for drowsiness detection to prevent accidents.

This system consist of 3 parts face detection, eye detection and eye closure detection.

First part of the project is to detect the face which i have done using Dlib library.

Dlib library in machine learning is a library made for complex algorithms. If a face is detected in the video, I had applied facial landmark detection and extract the eye regions on every frame, using a pre trained shape predictor model. From their I extracted the Eye regions, through which i have computed the eye aspect ratio to determine if the E.A.R of eyes is below a certain E.A.R threshold ,for a certain period of time. If yes , we’ll trigger an alarm to alert the driver.

This way we can prevent accidents happening at night due to sleepiness.