

SURVEILLANCE, SAFETY AND SECURITY

S3'

ARE YOU SAFE?

CAN WE STOP MURDERS
BEFORE THEY ACTUALLY
HAPPEN?

OUR PROPOSAL, YES WE CAN!

HOW?

- ▶ WE ARE PLANNING TO INTEGRATE , MACHINE LEARNING AND HUMAN PSYCHOLOGY TO ACHIVE THE SUPPOSEDLY IMPOSSIBLE.
- ▶ THE IP ENABLED SECURITY CAMERAS WILL SERVE AS OUR INPUT.
- ▶ WE HUMANS ARE SOCIAL HUMAN BEINGS RIGHT? SO THERE IS A CERTAIN PATTERN IN WHICH ALL OF US INTERACT WITH OTHERS DEPENDING ON THE SITUATION.

HUMAN BEHAVIOUR

- ▶ Let's take an example of a posh party hosted by a Celebrity, There are certain ways in which people interact, move in a party. Since it is a high profile party there will definitely be a lot of cameras in operation. We will take the feed from the camera and input into an Already trained Machine learning program which will contain GENERAL PARTY BEHAVIOUR PATTERNS.
- ▶ If a person goes through abrupt movement, Doesn't talk to anybody, or anything which isn't considered normal. The system will alert the security officials so that they can keep tag of that specific person.

THE PROGRAM

- ▶ The Machine learning process will be supervised. As in we will feed the model with a lot of Party situations, which will serve as the reference pattern.
- ▶ We will be using OpenCV linked with the array of security cameras to feed the 'TEST MATERIAL'.
- ▶ The 'test material' will constantly be compared with the thousands of already existing situation, Any abnormality will send an alert to the security. Increasing Caution.

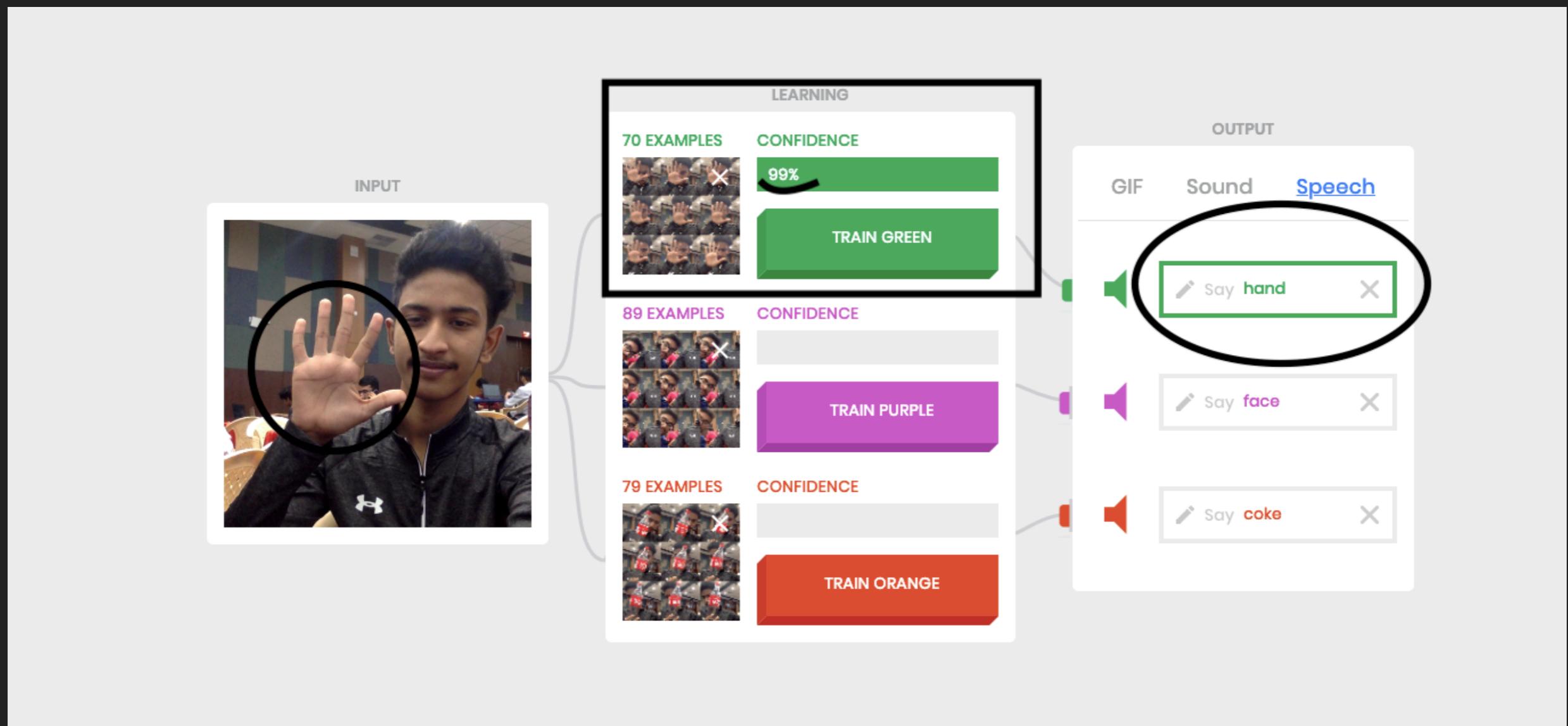
THE PROCESS

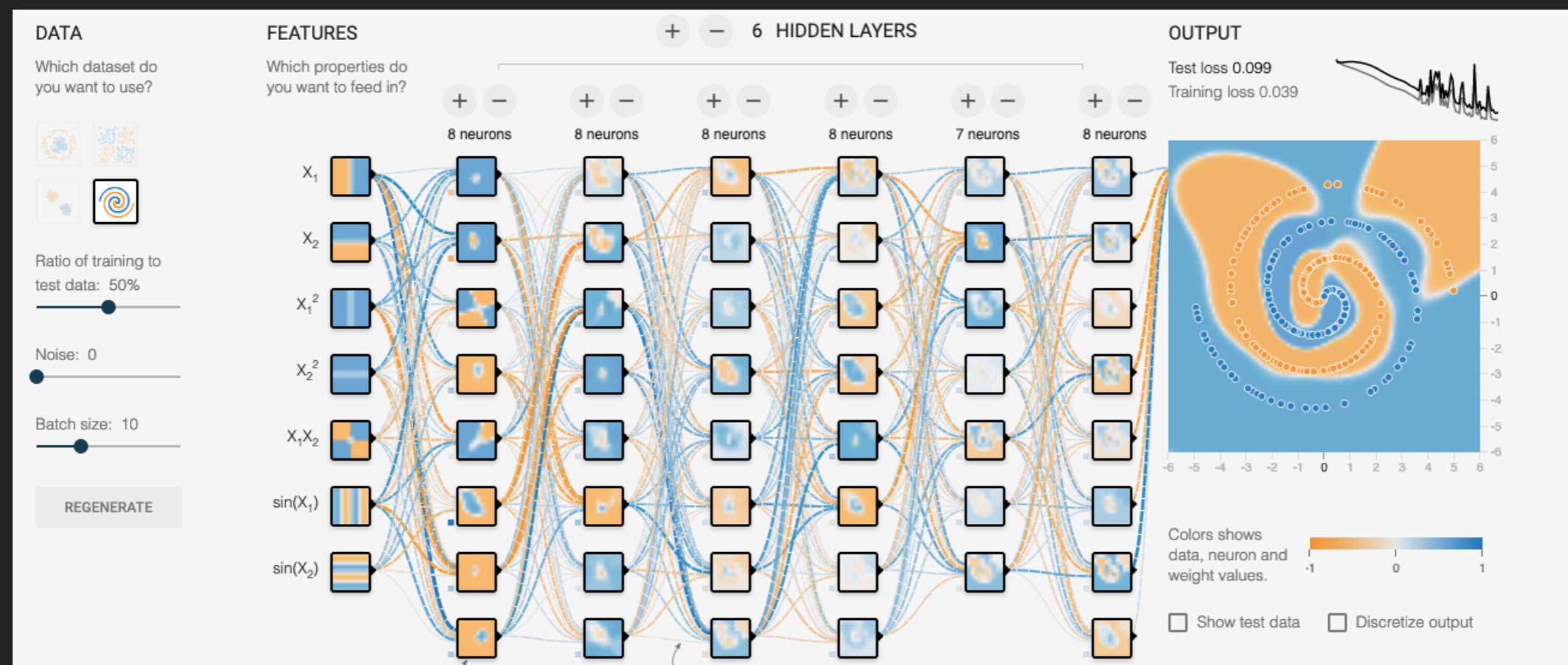
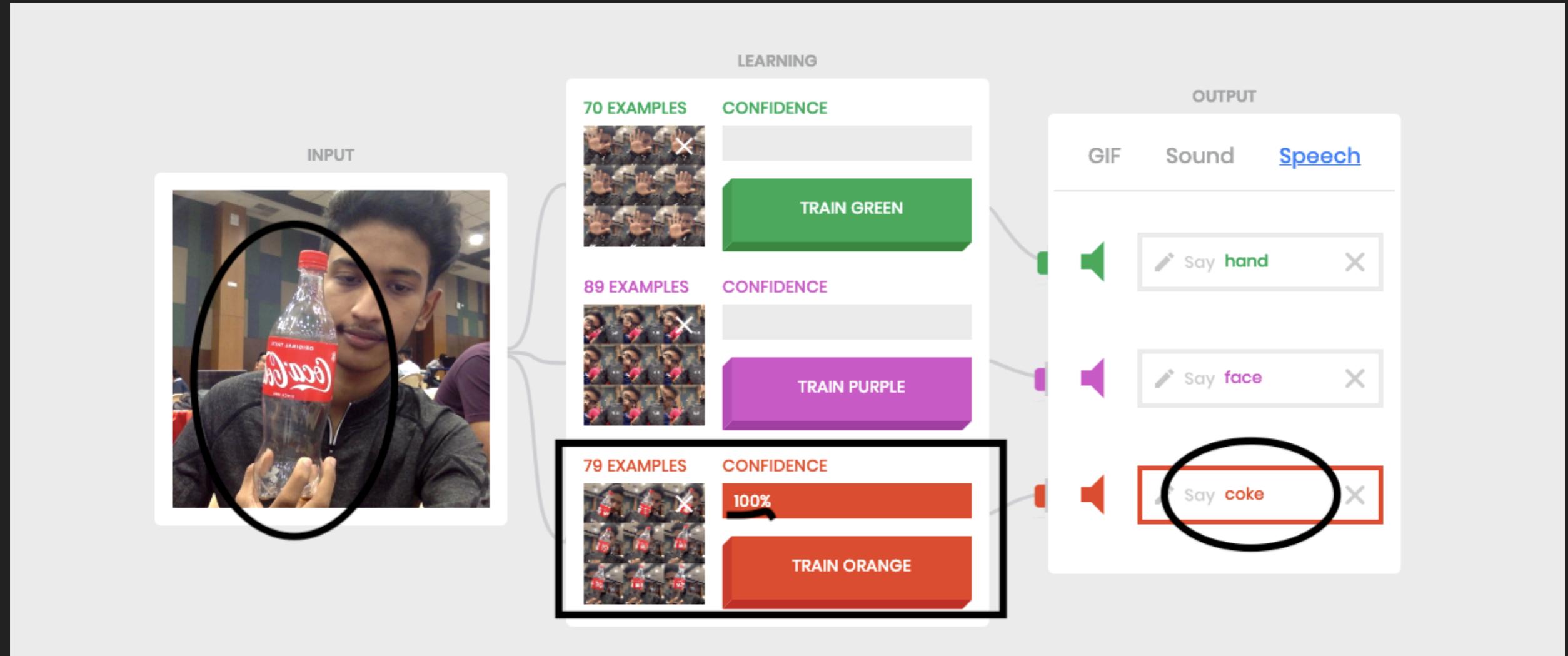
- ▶ We started off by writing code for full body recognition and motion tracking. But Openly available Fullbody recognition haarcascades weren't good enough.
- ▶ Hence we decided to demo with only motion tracking, face detection and face tagging.
- ▶ The aim of the program is basically to detect abnormality in a particular area.
- ▶ **VIDEO SUPERVISION** is a **PATENTED CONCEPT**.

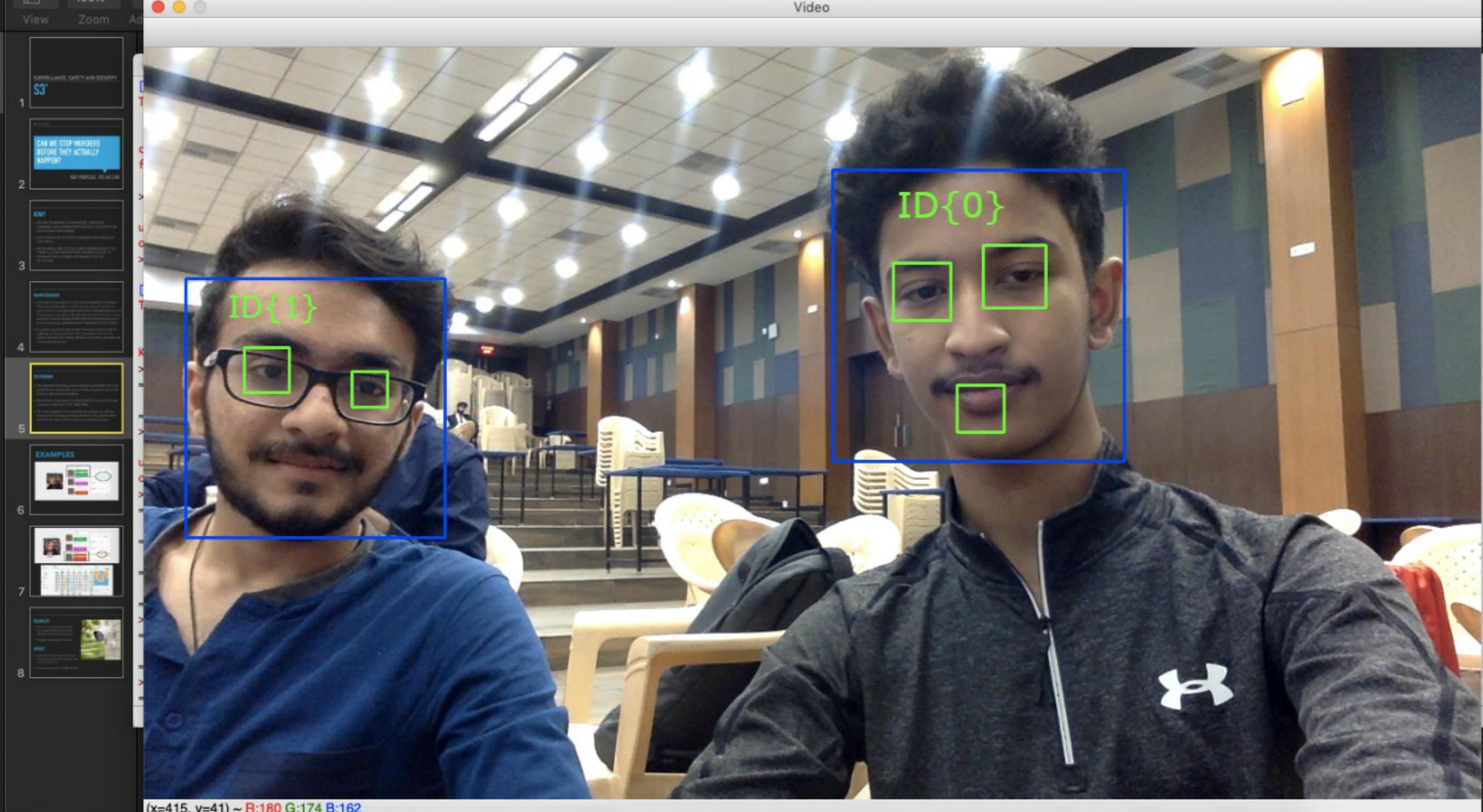
ENVISION AND THE PROBLEMS WE FACED

- ▶ Creating a dataset with our own videos is a theoretical concept and only achieved by a few practically. None of those models are available to the public.
- ▶ We will demo a similar situation with still images as datasets instead of an array of frames or an action.
- ▶ As of now, we can tag people based on their entry and with the array of cameras which give us a whole range of input coverage. We should be able to see whatever a person is doing at any point.

EXAMPLES



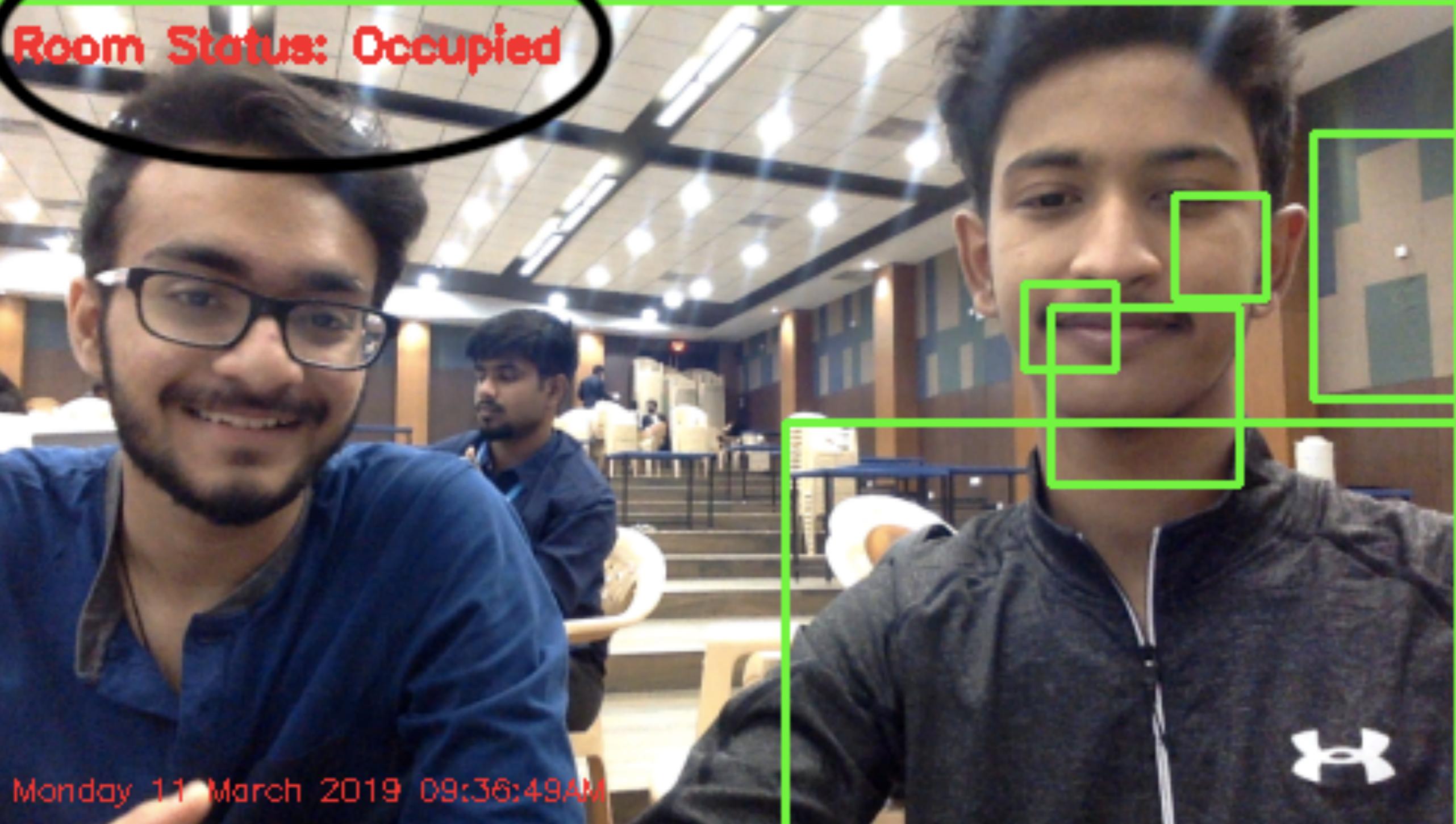




(x=415, y=41) ~ R:180 G:174 B:162

Security Feed

Room Status: Occupied



Monday 11 March 2019 09:36:49AM

(x=267, y=178) ~ R:112 G:105 B:91

FEASIBILITY

- ▶ Our source: Cameras and data from around the country/world. (Already existing infrastructure)
- ▶ Program: Developed in house.

VERDICT

- ▶ Apart from already invested money into procurement of the cameras and a surveillance room.
- ▶ The dataset training method can be developed with time.

