

# PROBLEM STATEMENT

THEME NAME: SMART AUTOMATION

PROBLEM STATEMENT TITLE: DEVELOPING A  
SOLUTION FOR GESTURE ENABLED COMMANDS FOR  
OPERATING LAPTOPS/PCs FOR FREQUENTLY USED  
OPERATIONS ON DAILY BASIS.

PS CODE: NRII157

ORGANIZATION NAME:

DEFENSE RESEARCH AND DEVELOPMENT

ORGANIZATION (DRDO), MINISTRY OF DEFENSE.



## PROBLEM STATEMENT DESCRIPTION

FOR ANY USER, AUTHENTICATED BY FACE RECOGNITION, FEW GESTURES COULD BE DEFINED FOR FREQUENTLY USED TASKS- SAVE, EXIT, PRINT, SCREEN-LOCK, SCREEN UNLOCK, SYSTEM SHUT DOWN, SYSTEM RESTART. SAVE, PRINT AND EXIT OPERATIONS ARE CONTEXT SENSITIVE MEANING THAT IT IS APPLICABLE FOR CURRENT APPLICATION. FOR EXAMPLE IF WORD DOCUMENT IS OPEN AND THE GESTURE FOR SAVE IS DONE THEN THE DOCUMENT WILL SAVED, IF PRINT GESTURE IS DONE THEN PRINTER DIALOG WILL OPEN ETC. SIMILARLY A GESTURE COULD BE DEFINED FOR CLOSE/EXIT WHICH WILL CLOSE THE CURRENT APPLICATION. IF NO APPLICATION IS OPENED THEN IT WILL WORK AS SYSTEM SHUT DOWN. IT IS SIMILAR TO ALT+F4 KEY PRESS FUNCTIONALITY ON WINDOWS PC.



## OUR IDEA

- WE PROPOSED TO MAKE A PROTOTYPE WHEREIN THE USER HAS TO LOGIN THROUGH FACIAL RECOGNITION AND NOT MERELY BY ENTERING CREDENTIALS.
- WE TRIED TO IMPLEMENT SAVING DOCUMENTS USING FINGER EXPRESSION LIKE ROCK, FIST EXPRESSION TO PRINT A DOCUMENT, THUMBS UP IN ORDER TO TAKE A SCREENSHOT, AND THUMBS DOWN IN ORDER TO OPEN THE TASK MANAGER.

## FLOWCHART OF THE PROJECT



Login using Facial  
Recognition

Use Finger expressions  
to control your system



# TECHNOLOGY STACK

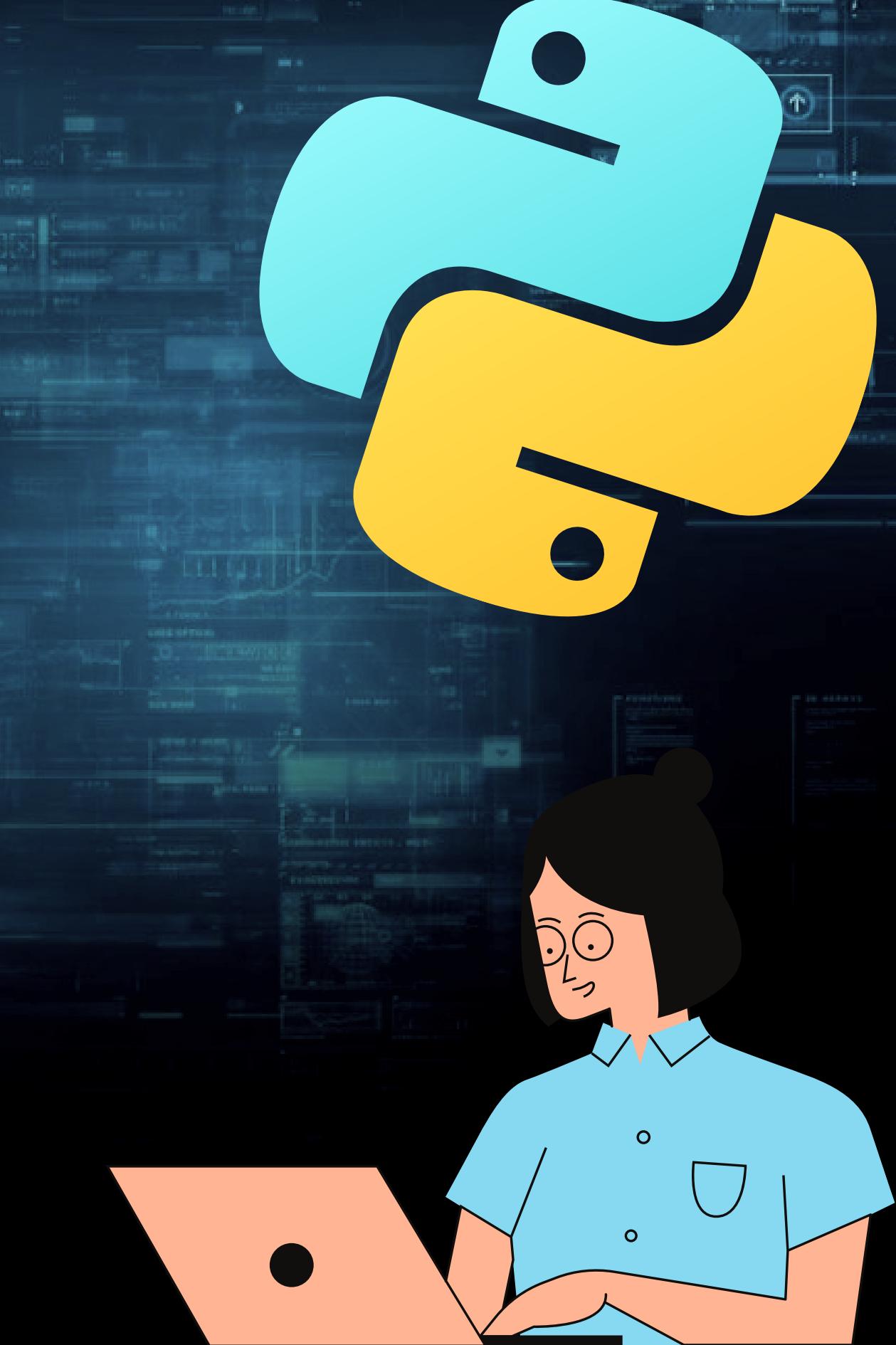
# Python Open

# TENSORFLOW

# MEDIAPEDIA

# Python Autoc

# TKINT



# DEPENDENCIES

- SINCE OUR PROJECT IS BASED ON MACHINE LEARNING, IT REQUIRES HIGH PERFORMING SYSTEMS.
- THERE ARE CHANCES OF MISSING HAND RECOGNITION SELDOM.
- ANY MISTAKEN SIGN / BOMBARDED SIGN CAN BY MISTAKENLY BE IDENTIFIED AS A COMMAND.

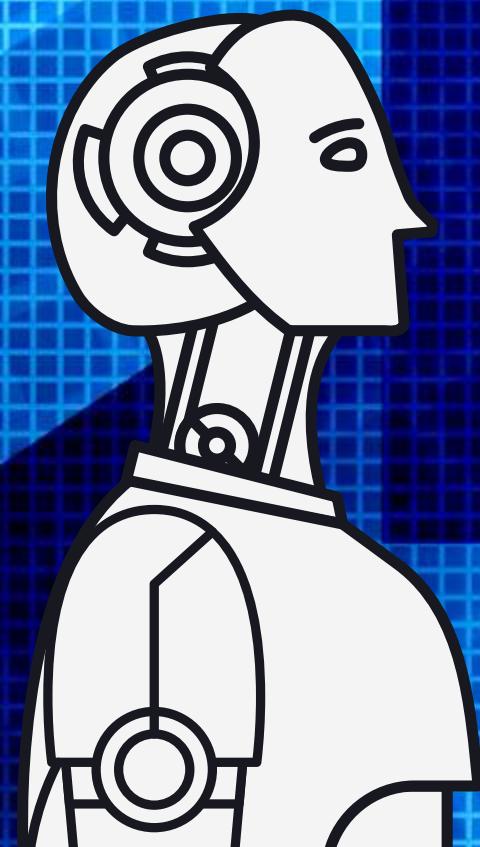
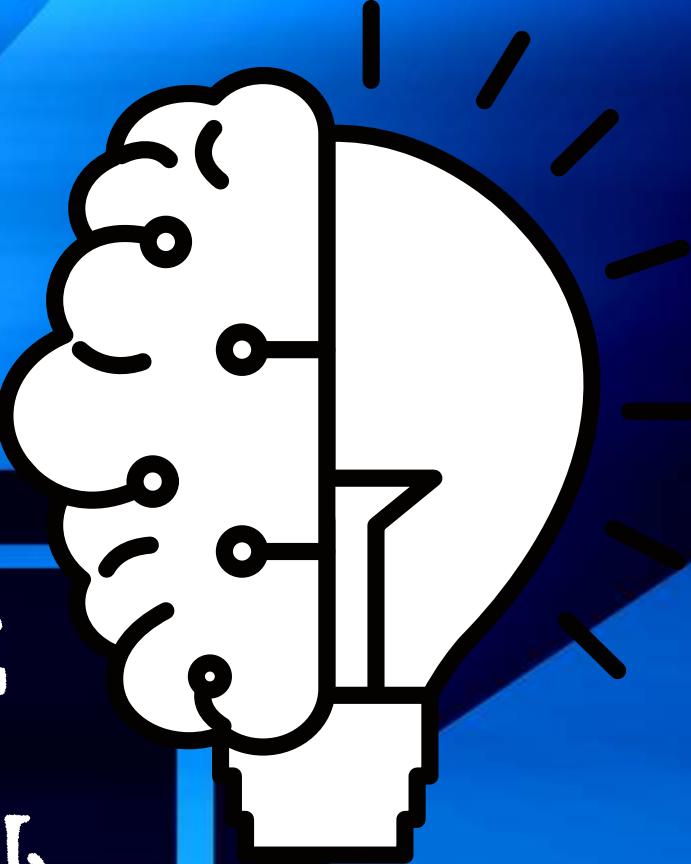


# APPLICATION

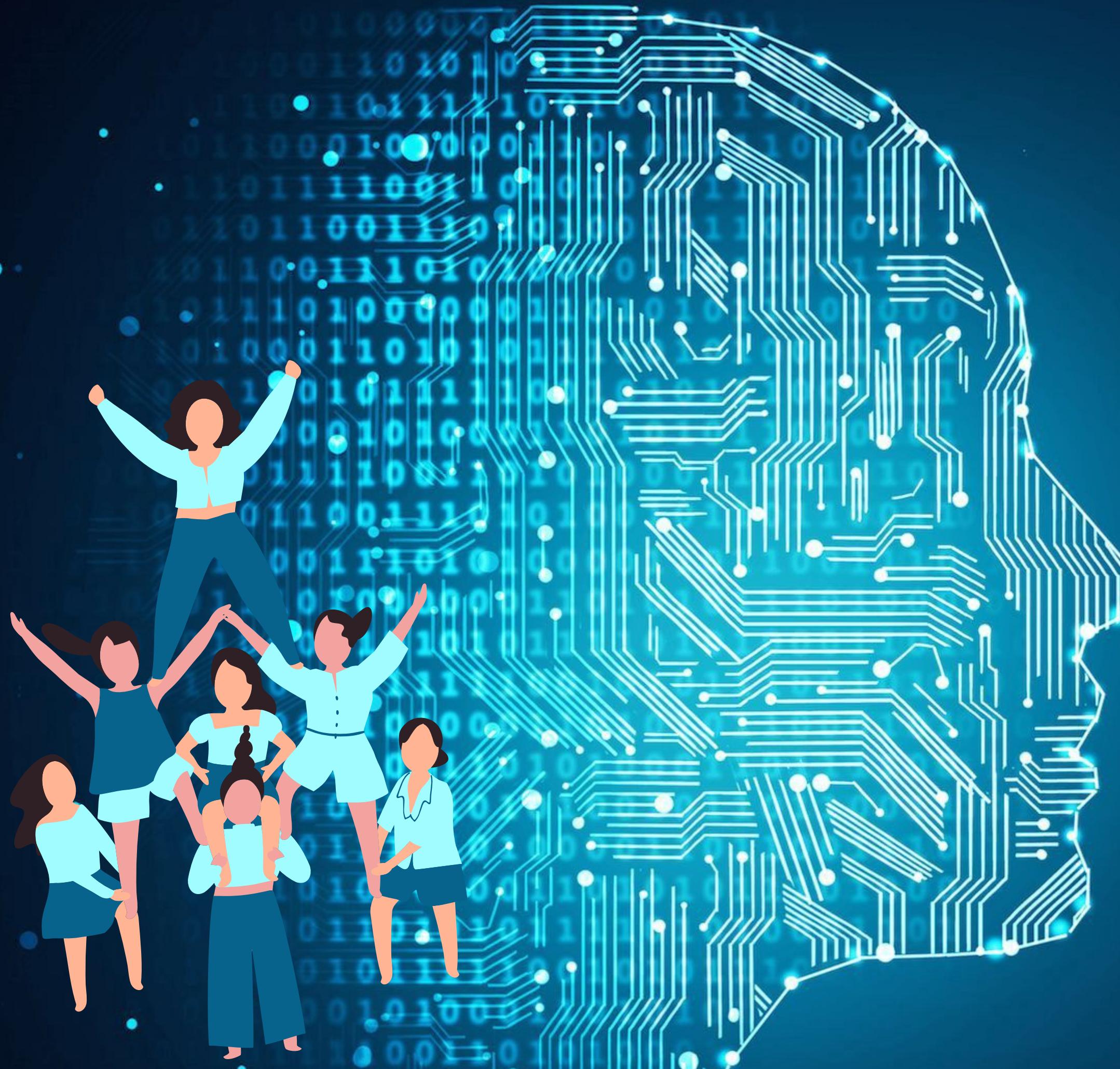
SINCE OUR PROJECT IS MAJORLY BASED ON MACHINE LEARNING, IT WOULD REALLY BE USEFUL IN ARTIFICIAL INTELLIGENCE & ROBOTICS INDUSTRY.

IT WOULD PLAY A MAJOR ROLE IN RPA (ROBOTIC PROCESS AUTOMATION).

IT WOULD ALSO BE USEFUL IN IMPLEMENTING IoT GADGETS.



# THE INNOVATORS



TEAM LEADER NAME: VIBODH BHOSURE

BRANCH: BE STREAM: CSE YEAR: II

TEAM MEMBER 1 NAME: SWARA PATIL

BRANCH: BE STREAM: CSE YEAR: II

TEAM MEMBER 2 NAME: PANKAJ BADGUJAR

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TEAM MEMBER 3 NAME: SNEHAL LOHAR

BRANCH: BE STREAM: CSE YEAR: II

TEAM MEMBER 4 NAME: VINAY BHOJWANI

BRANCH: BE STREAM: CSE YEAR: II

TEAM MEMBER 5 NAME: PRANATI JAYANTY

BRANCH: BE STREAM: CSE YEAR: II

# OUR MENTOR

TEAM MENTOR NAME: SWAPNIL SONAWANE

CATEGORY: ACADEMIC

EXPERTISE: BLOCKCHAIN, ALGORITHMS, USABILITY

ENGINEERING

DOMAIN EXPERIENCE (IN YEARS): 13



Thank  
You

