AUTONOMOUS NAVIGATION FOR ROBOTIC ARM USING CAMERA

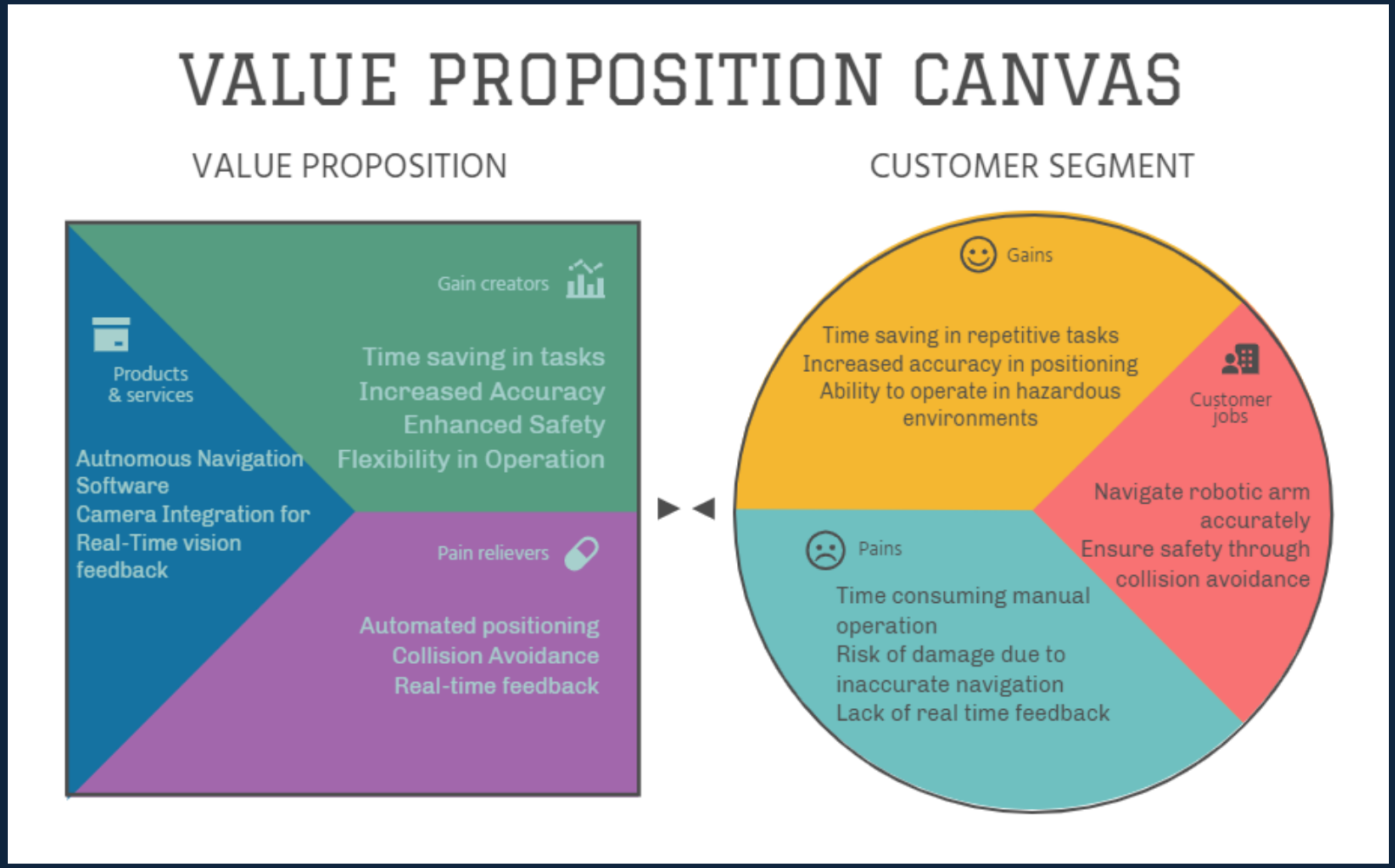
Group – 6

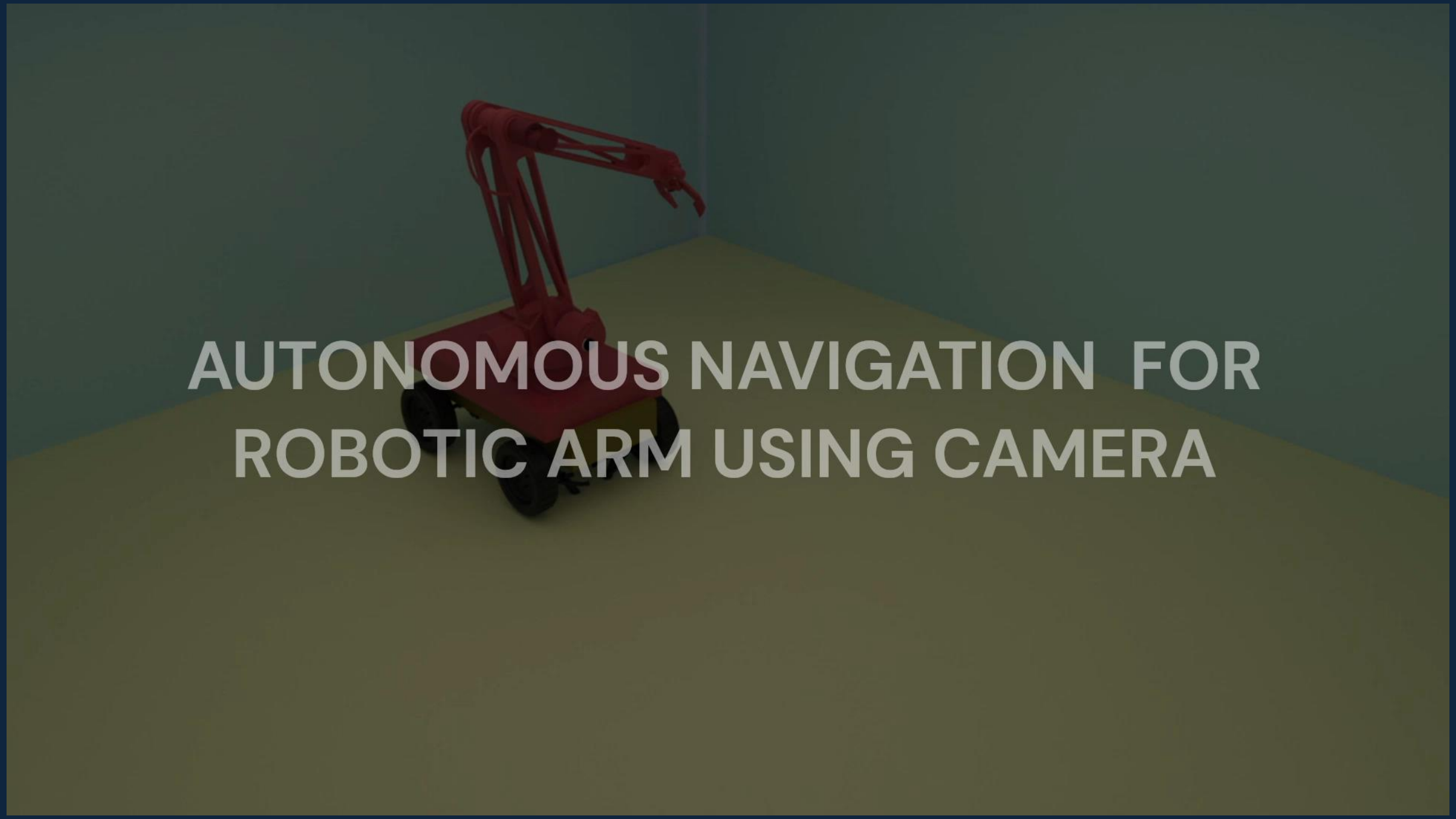
Technology Entrepreneurship

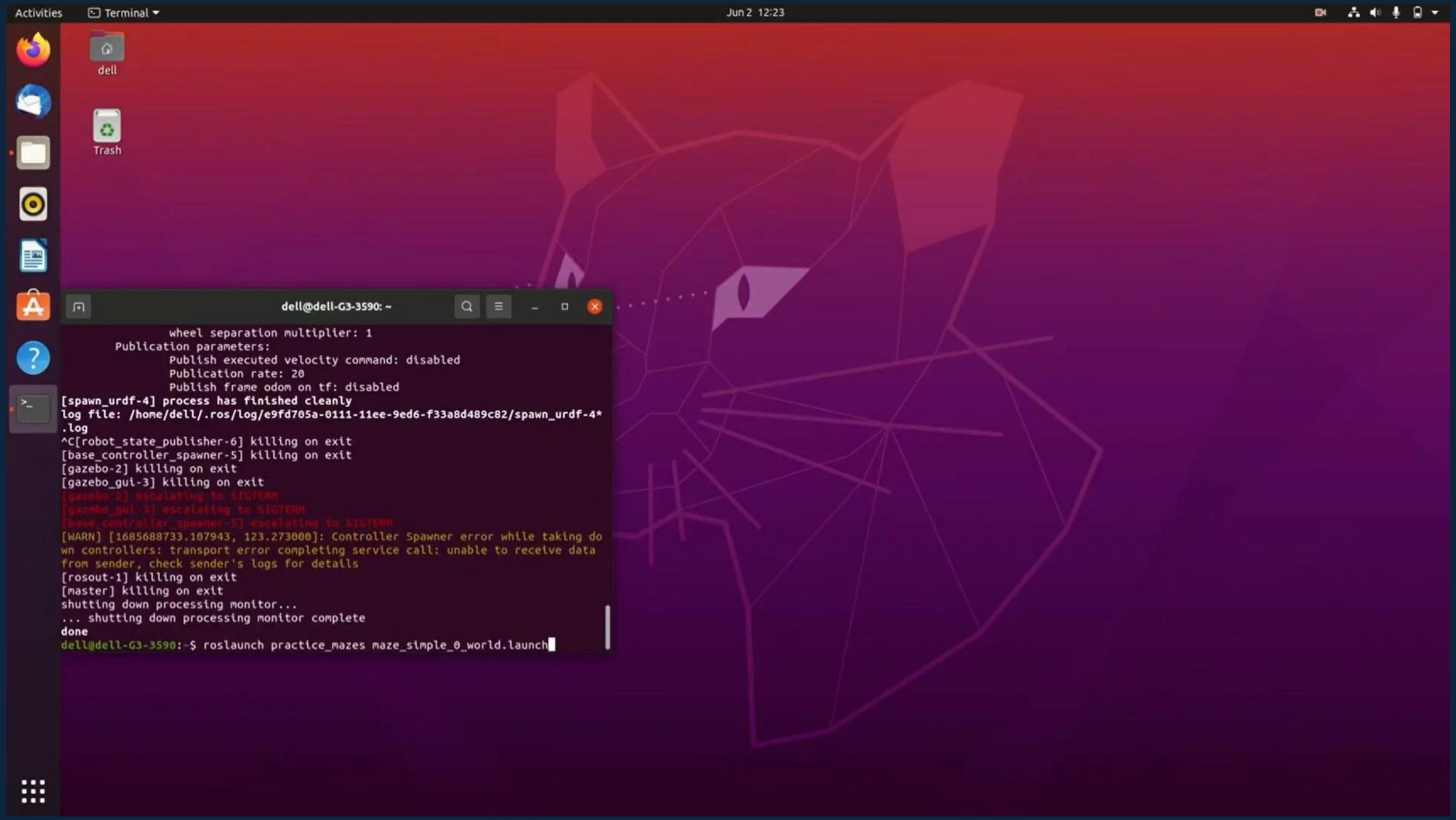
20CS10038	N Surya Prakash Reddy
20CS10013	Bendi Pragnya sree
20EC10013	Arnepalli Jahnavi
20EC10035	Jayewar Shruti
20EC10061	Nandhini Reddy
19EC39009	Devarakonda Jyothi Eswar
20CE10019	Lakshmi Narasimha
20CE10024	Sri Kiran Chandra
20ME30043	Potti Satya Manikanta

Introduction

- Usage of a robotic arm, mobile chassis, and Raspberry for autonomous navigation using camera.
- Implementation of computer vision algorithms on Raspberry Pi for color classification.
- Improving efficiency and accuracy of delivery, and organize and encrypt data for security




AUTONOMOUS NAVIGATION FOR
ROBOTIC ARM USING CAMERA


Activities
Terminal
Jun 2 12:23
dell
Trash
dell@dell-G3-3590: ~
wheel separation multiplier: 1
Publication parameters:
Publish executed velocity command: disabled
Publication rate: 20
Publish frame odom on tf: disabled
[spawn_urdf-4] process has finished cleanly
log file: /home/dell/.ros/log/e9fd705a-0111-11ee-9ed6-f33a8d489c82/spawn_urdf-4*.log
^C[robot_state_publisher-6] killing on exit
[base_controller_spawner-5] killing on exit
[gazebo-2] killing on exit
[gazebo_gui-3] killing on exit
[gazebo-2] escalating to SIGTERM
[gazebo_gui-3] escalating to SIGTERM
[base_controller_spawner-5] escalating to SIGTERM
[WARN] [1685688733.107943, 123.273000]: Controller Spawner error while taking down controllers: transport error completing service call: unable to receive data from sender, check sender's logs for details
[rosout-1] killing on exit
[master] killing on exit
shutting down processing monitor...
... shutting down processing monitor complete
done
dell@dell-G3-3590:~$ roslaunch practice_mazes maze_simple_0_world.launch

Conclusion:

- Cameras provide visual information, allowing for more detailed and context-rich data compared to simple sensor readings
- Making use of camera over sensors reduces the cost as well as circuit complexity
- Robotic arms reduce exposure to hazardous areas

Raspberry pi	Rs. 9000
Raspberry pi camera	Rs. 400
Breadboard	Rs. 100
Jumper wires(male to male, female to female, male to female)	Rs. 150
SD card	Rs. 360
Complete robotic arm with 4 motor,4 switch, 9v battery, battery connector,4 dpdt slide switch , 1.5 m 8 core rainbow wire	Rs. 1894
HDMI to HDMI cable	Rs. 350
Wirecutter	Rs. 60
Screws(all types)	Rs. 20
Normal wires	Rs. 200
Double tape	Rs. 30
Normal tape	Rs. 100

Total Cost : 12664
Industry Cost : 50000

Thank you