AA 274A: Principles of Robot Autonomy I
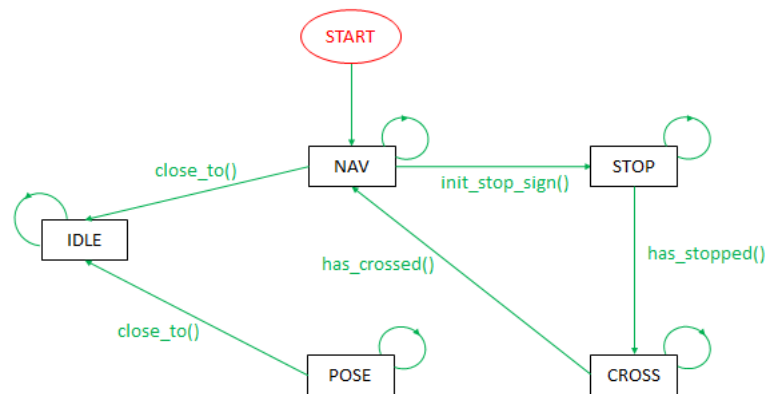# Problem Set 3
Group 18

Name: Abhyudit Singh Manhas (SUID: 06645995)
Name: Anish Mokkarala (SUID: 06499590)
Name: Gandharv Mahajan (SUID: 06510344)
Name: Shail Trivedi (SUID: 06501118)

Problem 4: Stop Sign Detection and FSM in ROS

(i) The file `supervisor.py` publishes to the `/cmd_pose` and `/cmd_vel` topics. The message types are `Pose2D` and `Twist` respectively.

(ii) Copied `P2_pose_stabilization.py` and `P3_trajectory_tracking.py` to

`~/catkin_ws/src/asl_turtlebot/scripts/controllers`

and modified `pose_controller.py`.

(iii) Extracted the focal lengths and principal points in the `camera_info_callback` function in `detector.py`.

(iv) Edited `project_pixel_to_ray` in `detector.py`.

(v) The state diagram for the FSM is shown below:

For this example, the mode/state changes are:

stops at a distance of
0.5 m for 2 seconds

takes 3 seconds to
cross the intersection
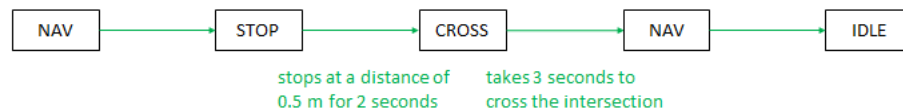
(vi) Coded the FSM.

(vii) The screenshot of the path and velocity profile is shown below: