Robot Control Architecture Diagram

AVOID_OBSTACLE

STOP_AND_PASS

Series of transitions

Obstacle Detected

Obstacle Detected On the blue line

Stop_and_pass turn timer

Obstacle turn timer

Obstacle Detected

Obstacle turn timer

Blue line detected

START

EXPLORE

LINE_FOLLOW

WANDER

Drive Forward/ Detect blue line

Blue line timer

STOP

Black line turn timer

AVOID_BLACK_LINE

Black line detected

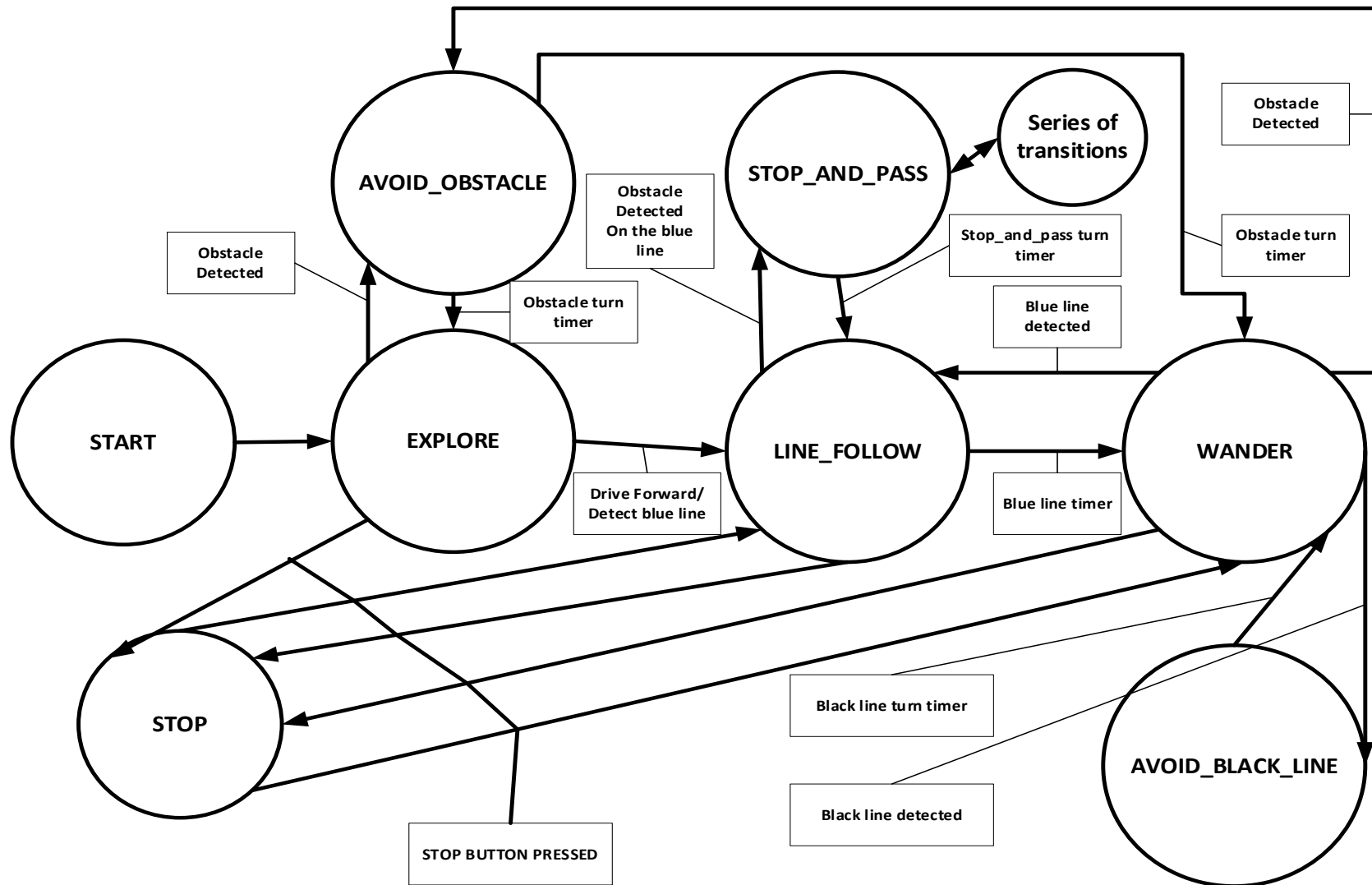STOP BUTTON PRESSED

The robots start with the EXPLORE state, drives forward and detect the blue lines. It also uses the AVOID_OBSTACLE behaviour in this state.

If the robots detect objects in their path during EXPLORING, they deflect and pass safely with the AVOID_OBSTACLE.

The LINE_FOLLOW allows the robots to follow the blue line, if any object obstruct or the two meets, they pass each other safely using the STOP_AND_PASS behaviour involves series of transition and states.

When the LINE_FOLLOW time elapses, the WANDER state is activated and in the WANDER state, the robots AVOID_OBSTACLE and also AVOID_BLACK_LINE are both used in this state.