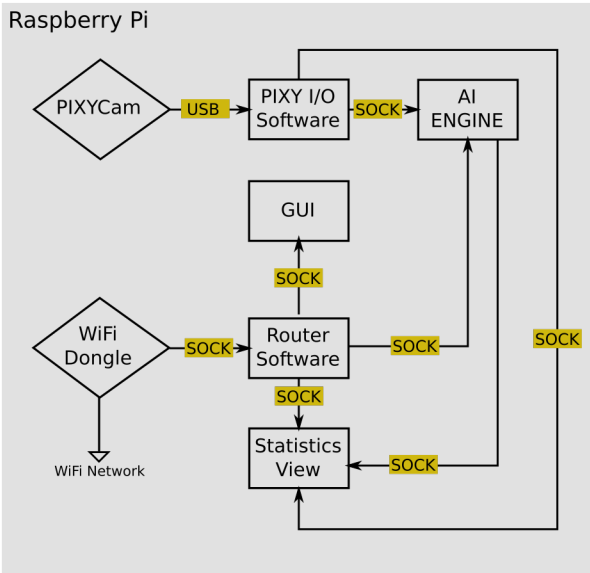


# TEAM 18 - TASK DIAGRAM

## VER 2.0



### PACMAN Rover

Primary control of the PACMAN rover is received by the WiFly as individual data frames. Each frame is checked for correctness by the UART RX Task. Data frames that are correct will send an "ACK" back over the UART via the UART TX Task. Valid data is passed into a decision task which takes data from the I2C-based line following array and makes the final decision to turn the rover in some direction. The decision is passed to a motor control task which is responsible for turning and forward motor drive sequences. Additionally, a color sensor (CS) task receives data from an I2C color sensor to detect "fruit" tokens. When a token is detected, this task sends a message over the UART indicating so. A debug task (DBG) is responsible for aggregating debug statuses of the system and sending the information over UART at a regular interval.

### GHOST Rover

Operation is equivalent to the PACMAN Rover except it lacks the color sensor (CS) task and I2C receive stack.

### RASPBERRY PI

Primary inputs for the Raspberry Pi are the PixyCam (CMUcam5) and the WiFi dongle. A stack of tasks, or processes, are defined to handle the PixyCam inputs. These include an I/O task which filters the inputs and an AI Engine task which uses the PixyCam rover location data to make decisions about where the rovers should go. A single process is dedicated to routing information to and from the rovers to the relevant tasks, including a statistics view (for debugging purposes) and a user interface task used to direct the PACMAN rover's next turn.

