Team 18 – Block Diagram

Andrew Bryant, Danny Dutton, Benjamin Singleton, John Spataro

PACMAN Rover
- SparkFun Line Following Sensor
  - Unidirectional data (sensor to PIC)
  - 8-bit data, corresponding to sensor eye state
  - I2C Interface
- ChipKit Motor Shield
  - GPIO speed and direction, 4-wire, unidirectional (PIC to shield), digital
  - I2C monitor, unidirectional byte (shield to PIC)
  - Servo motor out, 5-wire, PWM
- WiFly
  - Bidirectional serial asynchronous (UART)
  - Serial framed protocol (SOF, DATA, CHK, EOF)

GHOST Rover
- Same I/O complement PACMAN Rover

PIXYCAM Driver
- PixyCam
  - Unidirectional I2C
  - Data contains location of sensed objects
- WiFly
  - Bidirectional serial asynchronous (UART)
  - Serial framed protocol (SOF, DATA, CHK, EOF)

PROCESSOR
- WiFly
  - Bidirectional serial asynchronous (UART)
  - Serial framed protocol (SOF, DATA, CHK, EOF)

RASPBERRY PI
- Wireless Dongle
  - Bidirectional, TCP/IP Wifi access point
- Software
  - Linux OS, Server Routing Software, Statistics and Debugging Monitor

LAPTOP
- SSH Client

PACMAN Rover

Serial 2-wire UART

WiFly

ChipKit3

UART0

PIC32MX795F512L

GPIO

4-wire
motor speed/direction

I2C

8-bit motor read
(for monitoring)

8-bit sensor data

ChipKit Motor Shield

PWM

Motor 1

Motor 2

SparkFun Line Sensing Array

GHOST Rover

Serial 2-wire UART

WiFly

ChipKit3

UART0

PIC32MX795F512L

GPIO

4-wire
motor speed/direction

I2C

8-bit motor read
(for monitoring)

8-bit sensor data

ChipKit Motor Shield

PWM

Motor 1

Motor 2

SparkFun Line Sensing Array

RASPBERRY PI

LAPTOP

TCP/IP
Wifi

SSH Client

Ethernet

LINUX

Wireless
Dongle

Routing Software

Debugging
and Stats

TCP/IP
Wifi

PIXYCAM DRIVER

Serial 2-wire UART

WiFly

ChipKit3

UART0

PIC32MX795F512L

I2C

pixycam data

PROCESSOR

Serial 2-wire UART

WiFly

ChipKit3

UART0

PIC32MX795F512L

PIXYCAM