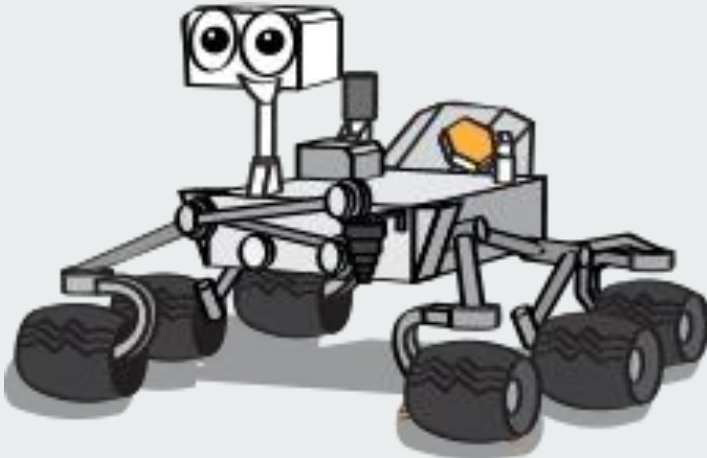# MARWIN

An Open Source Rapid Deployable DIY MARS Rover

Team Members

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Contents

- Abstract
- Problem Statement
- Design

Introduction

- Ever growing demand and developments in space exploration industry have inspired us to create MARWIN.
- Rapid industrialization and entry of private firms in space industry have opened up new possibilities for startups.

Abstract: project background

- The basic aim behind the project is to address the need of open source projects in space industry.
- The **MARWIN** rover is designed to be modular and customizable according to various explorational needs.
- The basic use of **MARWIN** will be to avail rapid deployable rover solutions in human exploration of other planets.

Problem statement:

- The working of space rover cannot be exhibited to the public directly and it is because of high maintenance costs.
- There is a lack of open-source projects that support space exploration and related technology.
- There is no available prototype or even design for rapid deployable modular rovers.

Design

- The design principle of MARWIN is logically divided into 3*3*3 like Rubik's Cube design approach.
- We use Rocker Bogie mechanism for traversing through rough terrain.
- We provide any of the scientific equipment in this prototype.
    - Atmospheric content Sensor : Which enables us to detect the presence of different types of Gases.
    - Life detecting robotic system : Which detects the presence of biological life form.
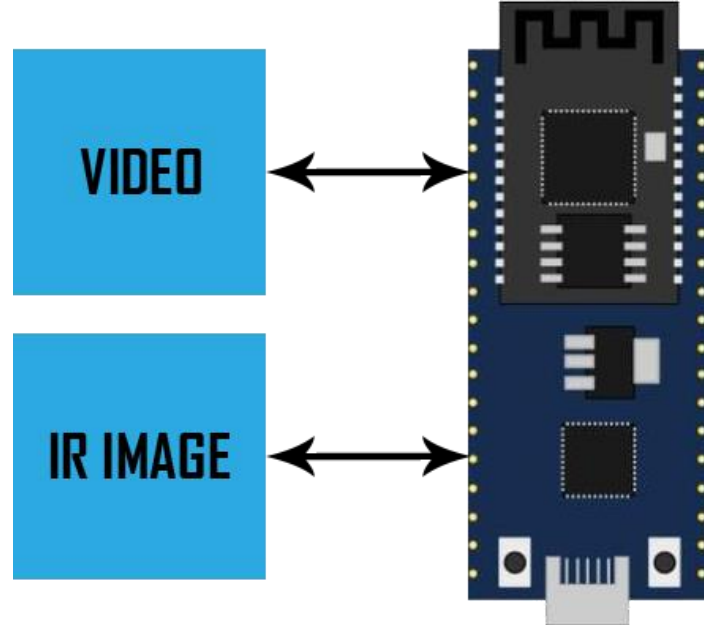
Architecture
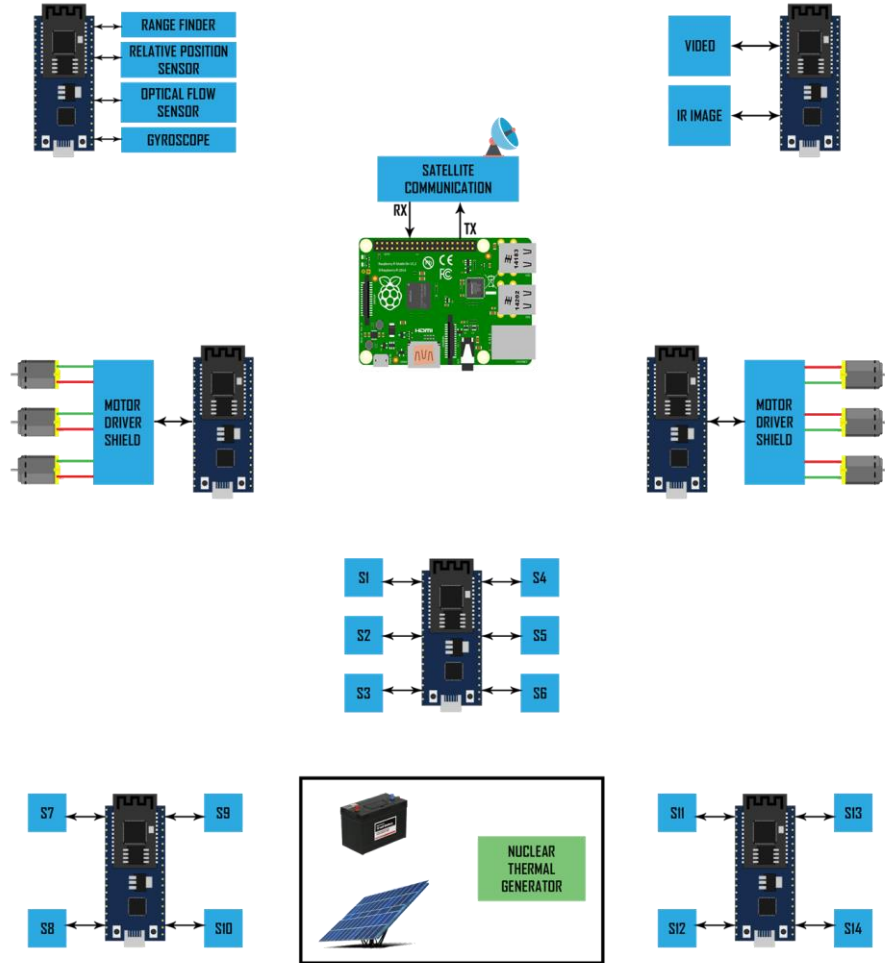
Raspberry Pi 3 B+

- It acts as the brain (Motherboard).
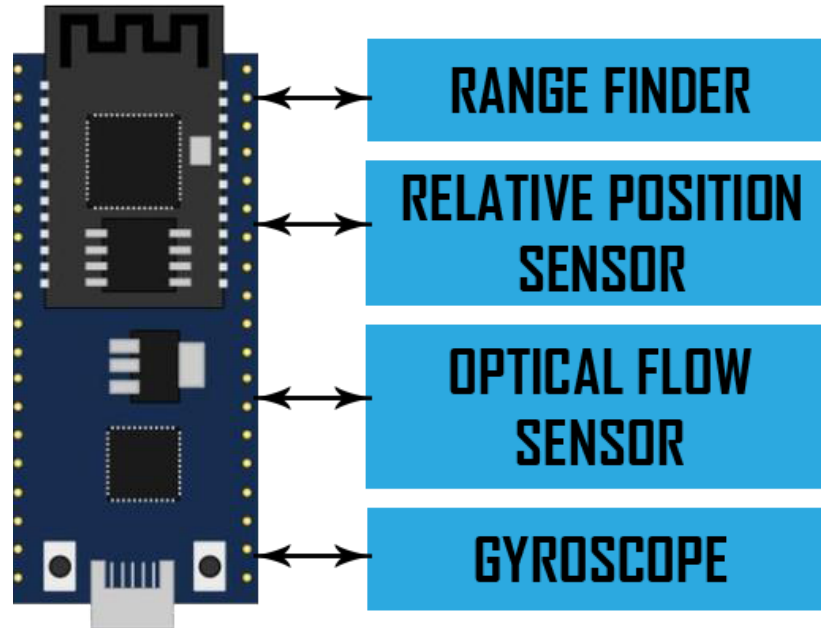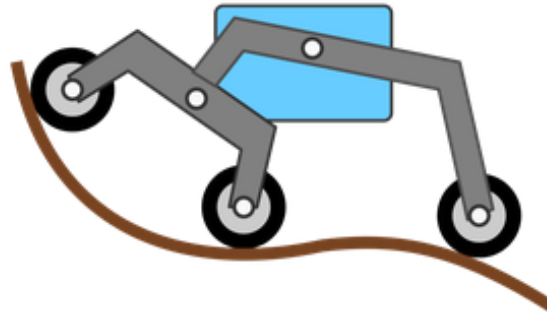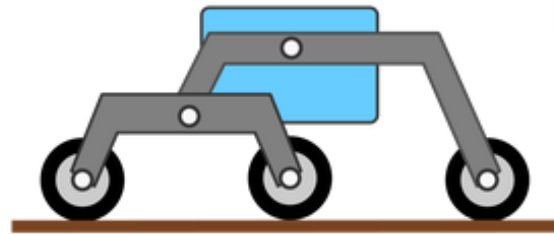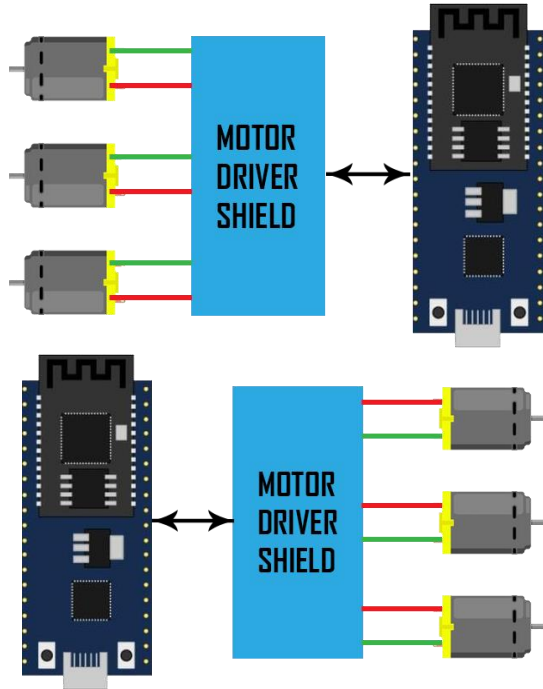- Buffers all data in the internal server (Database).
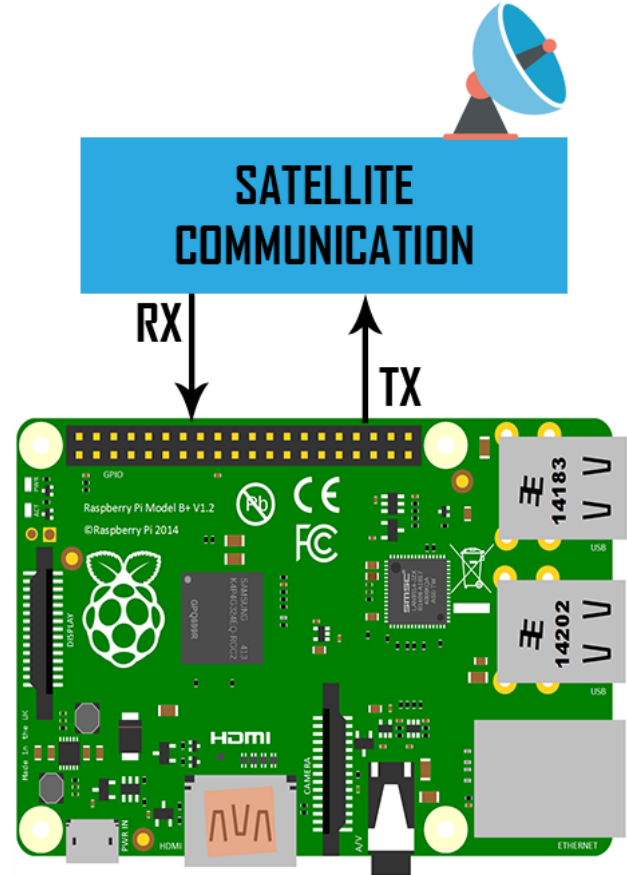
Live Analysis

Navigation Block

RANGE FINDER

RELATIVE POSITION SENSOR

OPTICAL FLOW SENSOR

GYROSCOPE
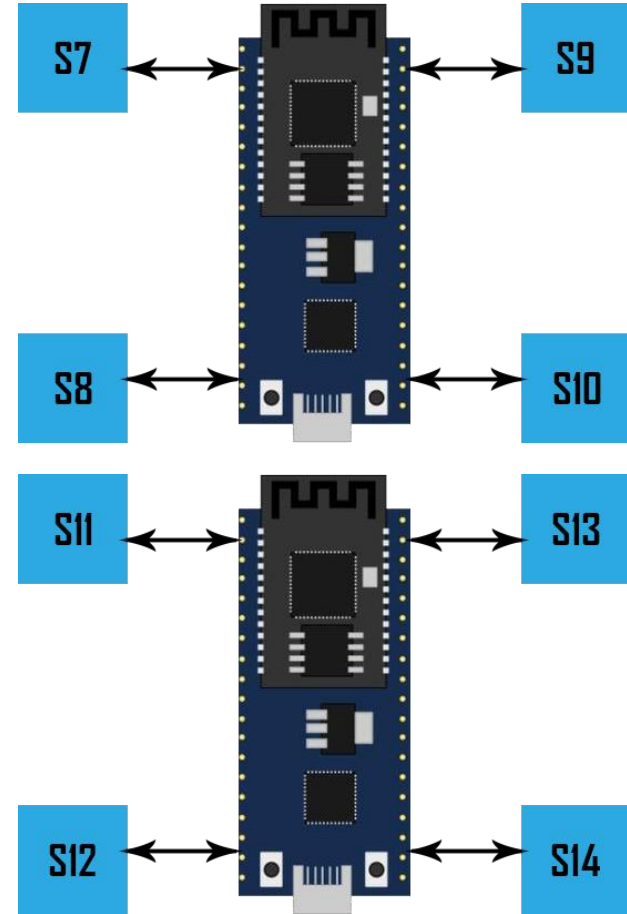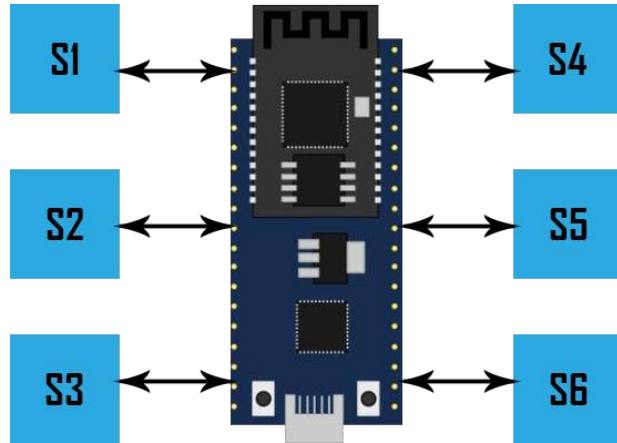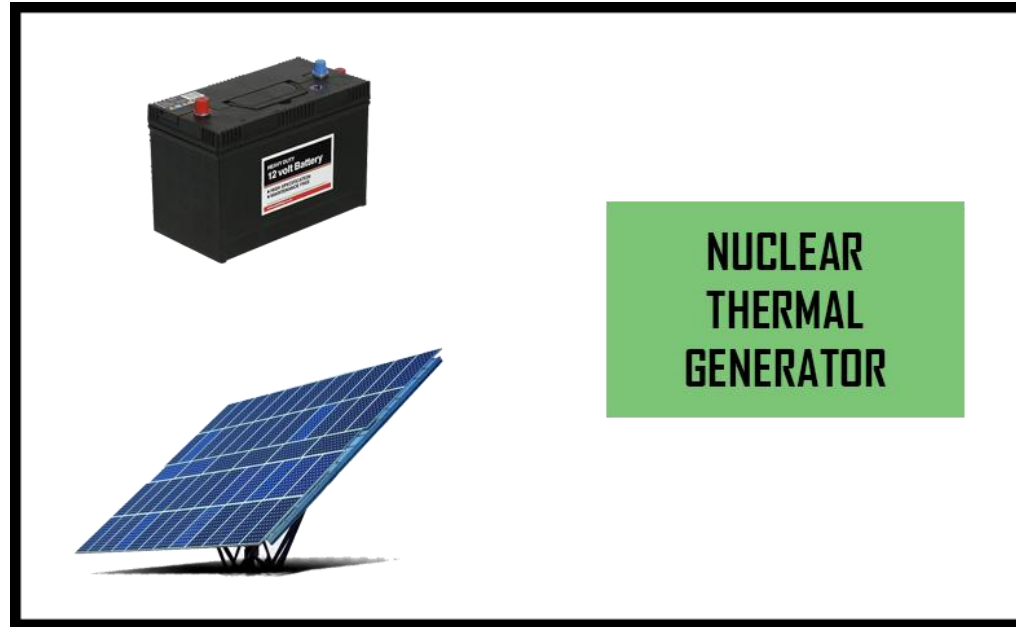
Left Wheel & Right Wheel

Rocker-Bogie system
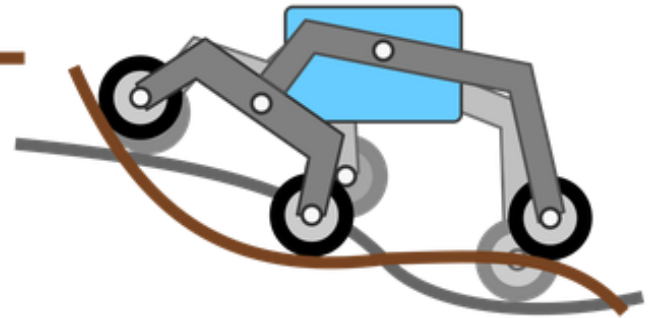
Sensor Cluster 1, 2 & 3

Power management block

Thank you !!

"Mars is there, waiting to be reached"

~Buzz Aldrin