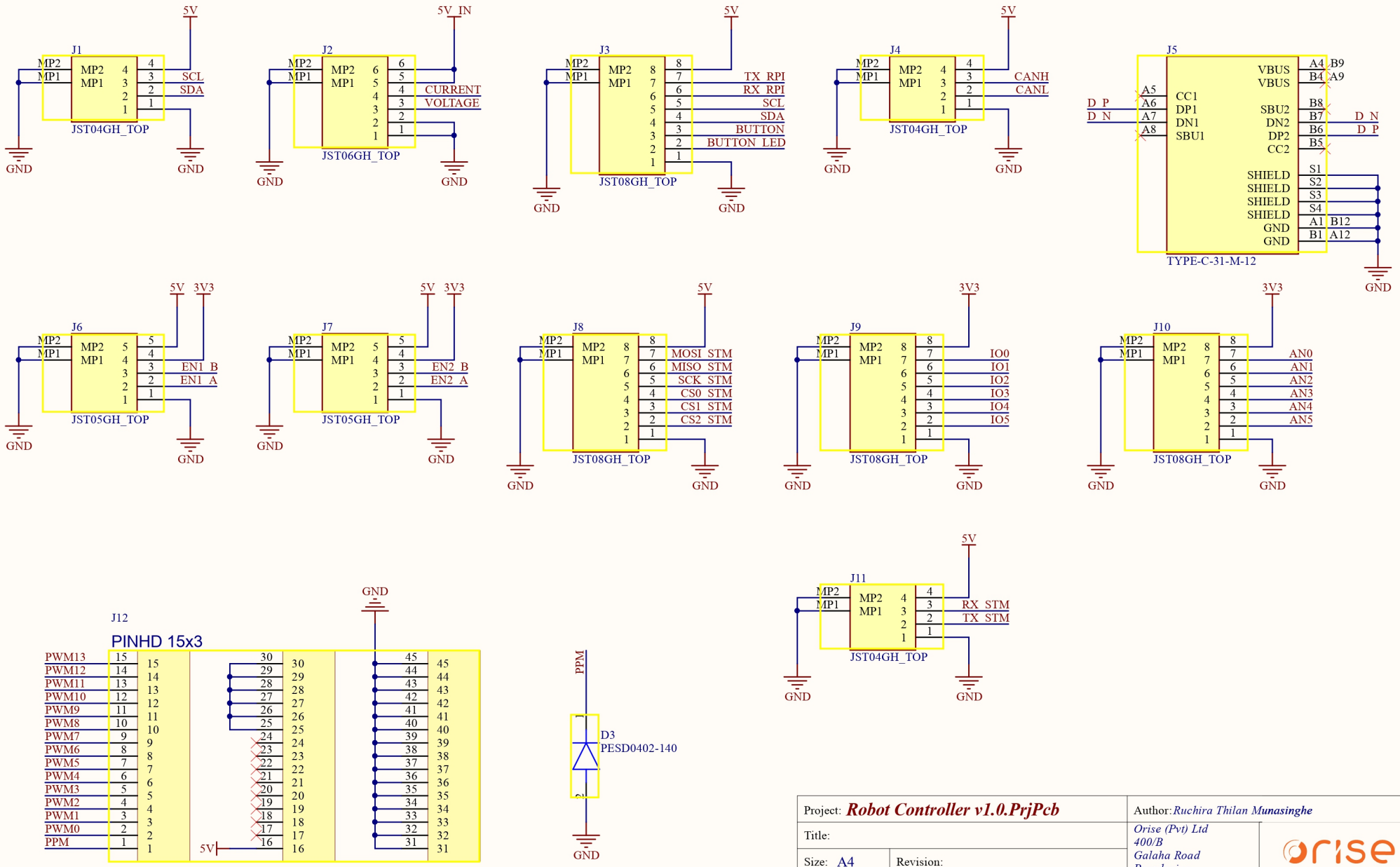

Project: ***Robot Controller v1.0.PrjPcb***		Author: *Ruchira Thilan Munasinghe*
Title:		*Orise (Pvt) Ltd* *400/B* *Galaha Road* *Peradeniya* *Sri Lanka*
Size: A4	Revision:	
Date: 27/06/2023	Time: 13:43:26 Sheet of	
File: E:\ORISE\projects\Robot Controller\Electronic design\Robot Controller v1.0\12.Connectors.SchDoc		

Connector Schematic Explanation: Robot Controller v1.0

This image shows another schematic from the "Robot Controller v1.0" project, focusing on various connectors and their
pinouts. These connectors likely facilitate communication, power distribution, and signal interfacing between different
modules or peripherals in the robot system. Here's a detailed explanation of the elements in the schematic:

Key Components and Their Functions:

1. Connectors (J1 to J12):
   - These connectors represent various interfaces for connecting external devices or subsystems. They include pins for
   communication, power, and signal exchange.
  - J1 & J2:
    - Connector type: JST04GH_TOP and JST06GH_TOP.
    - Pin functions:
      - J1: I2C communication (SCL, SDA) and power connections (3.3V, GND).
      - J2: Power inputs (5V_IN) and current/voltage monitoring.

  - J3 & J4:
    - Connector type: JST08GH_TOP and JST04GH_TOP.
    - Pin functions:
      - J3: Communication (TX, RX) and button/LED connections.
      - J4: CAN bus communication (CANH, CANL).

- J5 (TYPE-C-31-M-12):
  - USB Type-C connector for data and power. Pins include:
    - VBUS: Power input.
    - DP, DM: USB data lines.
    - SBU1, SBU2: Auxiliary lines.
    - Shield pins for grounding and noise reduction.

- J6 to J7:
  - Connector type: JST06GH_TOP.
  - Used for motor control or driver interfacing.
  - Pins include:
    - 5V, 3V3: Power supply lines.
    - EN1_A, EN2_B: Enable or control signals for motors.

- J8 & J9:
  - Connector type: JST08GH_TOP.
  - Used for SPI communication and GPIO expansion.
  - Pins include:
    - MOSI, MISO, SCK, CS1/CS2: SPI interface.
    - IO0 to IO3: General-purpose input/output.

- J10 & J11:
  - Connector type: JST08GH_TOP and JST04GH_TOP.
  - Analog signal inputs (AN0 to AN3) and UART communication (RX, TX).

- J12 (PINHD 15x3):

- A 15x3 pin header for PWM signals and additional GPIO pins.
- Includes:
  - PWM0 to PWM13: Pulse-width modulation outputs for motor or LED control.
  - PPM: Combined signal for RC communication.

2. Protection Diode (D3):
- Part number: PESD0402-140.
- Provides electrostatic discharge (ESD) protection for the PPM pin.

3. Power Supply Connections:
- Multiple connections for 5V, 3.3V, and GND distributed across the schematic.

Project Metadata:

- Title: Robot Controller v1.0.
- Author: Ruchira Thilan Munasinghe.
- Company: Orise (Pvt) Ltd.
- Date: June 27, 2023.
- File: Connectors.SchDoc.

Summary:

This schematic primarily focuses on the interface connectors for the robot controller, supporting communication protocols
like I2C, CAN, SPI, and UART, along with motor control, analog input, and USB connectivity. The connectors enable seamless
integration of sensors, actuators, and other peripherals essential for a robot's operation.