3V3

C29
CAP 0603 X7R 16V
0.1uF
GND

SDA

U8
QMC5883L

16 15 14 13
SDA DRDY NC_5 VDDIO

C30
CAP 0603 X7R 16V
0.22uF
SETP

SCL
3V3

1 SCL
2 VDD
3 NC_1
4 S1

SETC 12
GND_2 11
C1 10
GND_1 9

GND

C31
CAP 0603 X7R 16V
0.1uF

5 6 7 8
NC_2 NC_3 NC_4 SETP

C32
CAP 0603 X7R 16V
4.7uF

GND

SETP

GND

Explanation of Robot Controller Schematic

This document explains a schematic diagram for a circuit that appears to be part of a robot controller

project.

The main component in the schematic is the QMC5883L, which is a 3-axis magnetic sensor typically

used for compass

or orientation sensing in robotics and embedded systems.

Key Features of the Schematic:

1. QMC5883L Sensor (U8):

   - The sensor is connected to power (3.3V) and ground (GND).

   - Its key pins, including SDA (data line) and SCL (clock line), are connected to an I2C bus for

communication

   with a microcontroller or other devices.

2. Capacitors (C29, C30, C31, C32):

   - Decoupling capacitors are used near the power pins (VDD and GND) to stabilize the power

supply and reduce noise.

   - C31 (0.1 µF): Typical bypass capacitor for VDD.

   - C29 (0.1 µF): Another decoupling capacitor on the I2C lines.

   - C30 (0.22 µF): Used for SETP (Set Point) pin stabilization.

   - C32 (4.7 µF): Provides bulk decoupling for power lines.

3. Pin Connections:

   - The schematic shows clear connections for the SDA, SCL, SETP, and SETC pins.

- Unused pins are labeled as "NC" (No Connection).

4. I2C Interface:

  - The SDA and SCL lines facilitate communication with other components using the I2C protocol.

5. Project Details:

  - Title: Robot Controller v1.0

  - Author: Ruchira Thilan Munasinghe

  - Company: Orise (Pvt) Ltd, based in Sri Lanka.

  - Date: 27th June 2023.

6. Purpose of the Circuit:

  - This circuit is designed to integrate the QMC5883L sensor into a robot controller, enabling magnetic field sensing

  for orientation, navigation, or motion tracking.