SENSOR NODE

POWER SUPPLY PORT

POWER_IN_12V

1 12V_IN
2 GND

Power Supply

POWER SWITCH and FUSE

Fuse_SMD_0805L050WR

12V_IN
SW
MTS-102
12V_NoMeasured

POWER SENSOR

INA219

5V — VCC
GND — GND
SCL_MCU1 — SCL — V- — 8 — 12V
SDA_MCU1 — SDA — V+ — 7 — 12V_NoMeasured
V-
V+

INA219

POWER CONVERTER

DIODE
1N4007-M7
XL4015
XL4015

12V — IN+ OUT+ — 3 — 5V
12V_GND — IN- OUT- — 4 — GND

XL4015-MODULE

GND

CAN-POWER SUPPLY PORT

CAN-POWER-HEADER
CAN_POWER1

12V — 1 — 2 — 12V_GND
CANH — 3 — 4 — CANL

CAN-Power Supply

MICROCONTROLLER

BOOT
5V
GND
BOOT0_MCU1
RST_MCU1
RX_MCU1
TX_MCU1

Boot OTA Header

CONNECTOR_1PIN
P4

STM32F103C8T6

LEDR_MCU1 — 21 — B12 — G — 20
MPU_INT — 22 — B13 — G — 19
MPU_BOOT — 23 — B14 — 3.3 — 18
MPU_RST — 24 — B15 — R — 17 — RST_MCU1
SPI_CS — 25 — A8 — B11 — 16 — LEDG_MCU1
Debug_UART_TX_MCU1 — 26 — A9 — B10 — 15 — LEDB_MCU1
Debug_UART_RX_MCU1 — 27 — A10 — B1 — 14 — BTN1_MCU1
CAN_RX_MCU1 — 28 — A11 — B0 — 13 — BTN2_MCU1
CAN_TX_MCU1 — 29 — A12 — A7 — 12 — SPI_SCK
30 — A15 — A6 — 11 — SPI_MOSI
5V
31 — B3 — A5 — 10 — SPI_MISO
R1 — R2
4,7k — 4,7k
32 — B4 — A4 — 9 — ADC_Tempt
33 — B5 — A3 — 8 — RX_MCU
SCL_MCU1 — 34 — B6 — A2 — 7 — TX_MCU
SDA_MCU1 — 35 — B7
XShut_MCU1.1 — 36 — B8 — A1 — 6
R0805 — R5 — GPIO1_MCU1.1 — 37 — B9 — A0 — 5
4,7k — R3 — R4
38 — 5V — 4,7k — 4,7k
R0805 — R6 — C15 — 4 — XShut_MCU1.0
4,7k — 39 — G — C14 — 3 — GPIO1_MCU1.0
5V — 40 — 3.3 — C13 — 2
VB — 1

STM32F103C8T6

GND

CAN TRANSCEIVER

Can_module

CAN_TX_MCU1 — 1 — TXD — RS — 8
GND — 2 — VSS — CANH — 7 — CANH
5V — 3 — VDD — CANL — 6
CAN_RX_MCU1 — 4 — RXD — VREF — 5

SOIC-8_L5.0-W4.0-P1.27-LS6.0-BL

R14
120
R0805

R15
4k7
R0805

CAN_J
1
2
can_jumper

CANL

GND

LED and BUTTON DEBUG

5V — 5V — 5V — 5V

LEDR — LEDG — LEDB
LEDR — LEDG — LEDB

R0805 — R16
100
U1
LM35DZ
R0805 — R7 — R0805 — R8 — R0805 — R9
4,7k — 4,7k — 4,7k
+VS — VOUT — 2 — ADC_Tempt
R0805 — R17
100
GND — GND — C3
0.1u
LEDR_MCU1 — LEDG_MCU1 — LEDB_MCU1 — GND — GND — GND — C0805

5V — 5V

R0805 — R11
4,7k
R0805 — R10
4,7k

R13 — R12
1k — 1k
R0805 — BTN2_MCU1 — R0805 — BTN1_MCU1

2 — 2
BUTTON2 — C2 — BTN1 — C1
1 — 0.1u — 1 — 0.1u
C0805 — C0805

GND — GND

OBSTACLE SENSORS PORT

CJVL53L0XV2
XSHUT — 6 — XShut_MCU1.1
GPIO1 — 5 — GPIO1_MCU1.1
SDA — 4 — SDA_MCU1
SCL — 3 — SCL_MCU1
GND — 2 — GND
VCC — 1 — 5V

CJVL53L0XV2
XSHUT — 6 — XShut_MCU1.0
GPIO1 — 5 — GPIO1_MCU1.0
SDA — 4 — SDA_MCU1
SCL — 3 — SCL_MCU1
GND — 2 — GND
VCC — 1 — 5V

MPU SENSORS

IMU1
GY-BNO055

VCC — 1 — 5V
GND — 2 — GND
SCL — 3 — SCL_MCU1
SDA — 4 — SDA_MCU1
AD0 — 5
INT — 6 — MPU_INT
BOOT — 7 — MPU_BOOT
RESET — 8 — MPU_RST

SDCARD

MicroSDCardAdapter

CS — 1 — SPI_CS
SCK — 2 — SPI_SCK
MOSI — 3 — SPI_MOSI
MISO — 4 — SPI_MISO
VCC — 5 — 5V
GND — 6 — GND

SDCARD

UART PORT

UART1
5V — 1
GND — 2
Debug_UART_TX_MCU1 — 3
Debug_UART_RX_MCU1 — 4