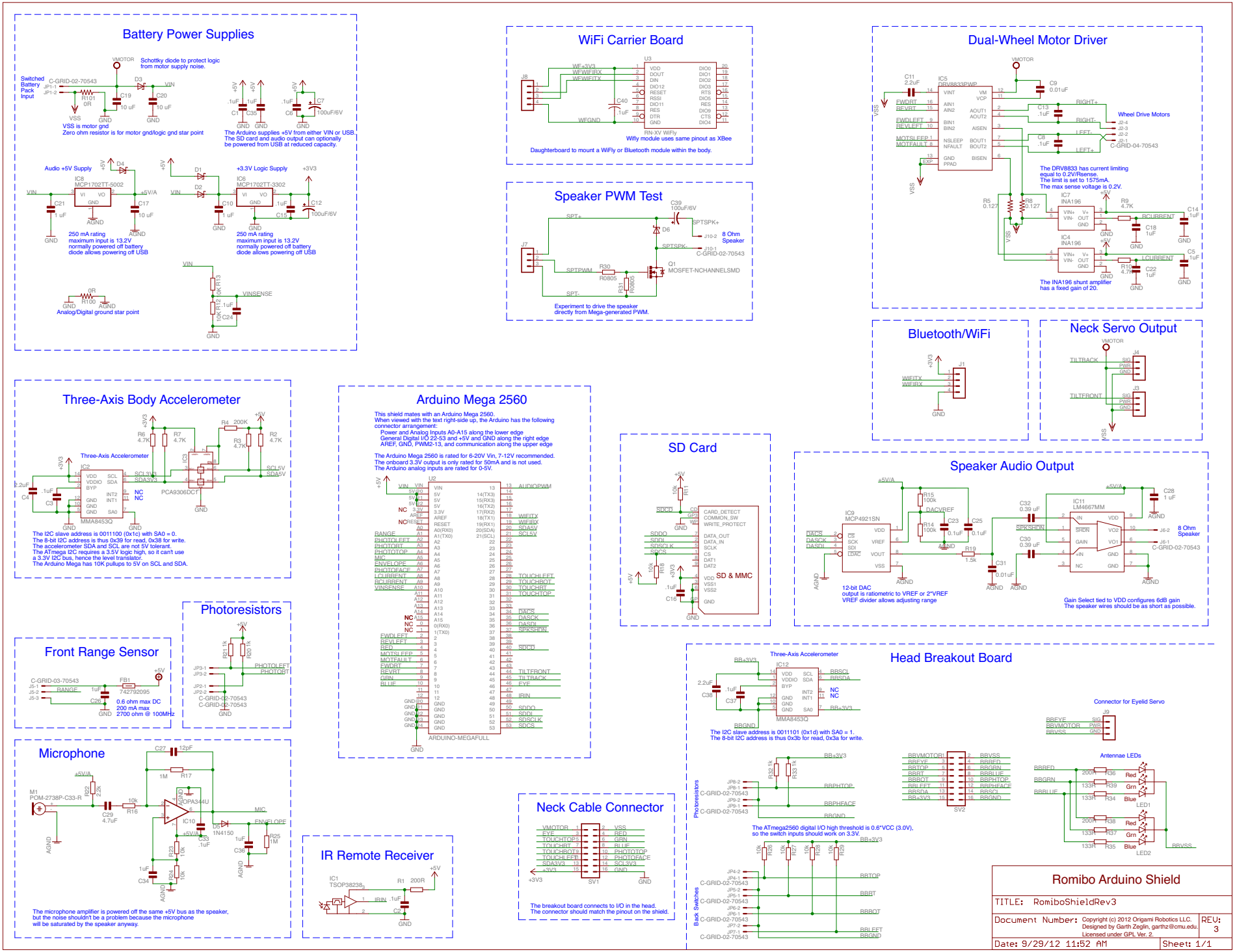
Battery Power Supplies
Switched Battery Pack Input
Schottky diode to protect logic from motor supply noise.
VSS is motor gnd
Zero ohm resistor is for motor gnd/logic gnd star point
The Arduino supplies +5V from either VIN or USB. The SD card and audio output can optionally be powered from USB at reduced capacity.
Audio +5V Supply
250 mA rating
maximum input is 13.2V
normally powered off battery
diode allows powering off USB
+3.3V Logic Supply
250 mA rating
maximum input is 13.2V
normally powered off battery
diode allows powering off USB
Analog/Digital ground star point
WiFi Carrier Board
Wifly module uses same pinout as XBee
Daughterboard to mount a WiFly or Bluetooth module within the body.
Speaker PWM Test
8 Ohm Speaker
Experiment to drive the speaker directly from Mega-generated PWM.
Dual-Wheel Motor Driver
Wheel Drive Motors
The DRV8833 has current limiting equal to 0.2V/Rsense.
The limit is set to 1575mA.
The max sense voltage is 0.2V.
The INA196 shunt amplifier has a fixed gain of 20.
Bluetooth/WiFi
Neck Servo Output
Three-Axis Body Accelerometer
Three-Axis Accelerometer
The I2C slave address is 0011100 (0x1c) with SA0 = 0.
The 8-bit I2C address is thus 0x39 for read, 0x38 for write.
The accelerometer SDA and SCL are not 5V tolerant.
The ATmega I2C requires a 3.5V logic high, so it can't use a 3.3V I2C bus, hence the level translator.
The Arduino Mega has 10K pullups to 5V on SCL and SDA.
Arduino Mega 2560
This shield mates with an Arduino Mega 2560.
When viewed with the text right-side up, the Arduino has the following connector arrangement:
Power and Analog Inputs A0-A15 along the lower edge
General Digital I/O 22-53 and +5V and GND along the right edge
AREF, GND, PWM2-13, and communication along the upper edge
The Arduino Mega 2560 is rated for 6-20V Vin, 7-12V recommended.
The onboard 3.3V output is only rated for 50mA and is not used.
The Arduino analog inputs are rated for 0-5V.
ARDUINO-MEGAFULL
SD Card
SD & MMC
Speaker Audio Output
12-bit DAC
output is ratiometric to VREF or 2*VREF
VREF divider allows adjusting range
Gain Select tied to VDD configures 6dB gain
The speaker wires should be as short as possible.
Photoresistors
Front Range Sensor
0.6 ohm max DC
200 mA max
2700 ohm @ 100MHz
Microphone
The microphone amplifier is powered off the same +5V bus as the speaker, but the noise shouldn't be a problem because the microphone will be saturated by the speaker anyway.
IR Remote Receiver
Neck Cable Connector
The breakout board connects to I/O in the head.
The connector should match the pinout on the shield.
Head Breakout Board
Three-Axis Accelerometer
The I2C slave address is 0011101 (0x1d) with SA0 = 1.
The 8-bit I2C address is thus 0x3b for read, 0x3a for write.
Photoresistors
The ATmega2560 digital I/O high threshold is 0.6*VCC (3.0V), so the switch inputs should work on 3.3V.
Back Switches
Connector for Eyelid Servo
Antennae LEDs
Romibo Arduino Shield
TITLE: RomiboShieldRev3
Document Number:
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