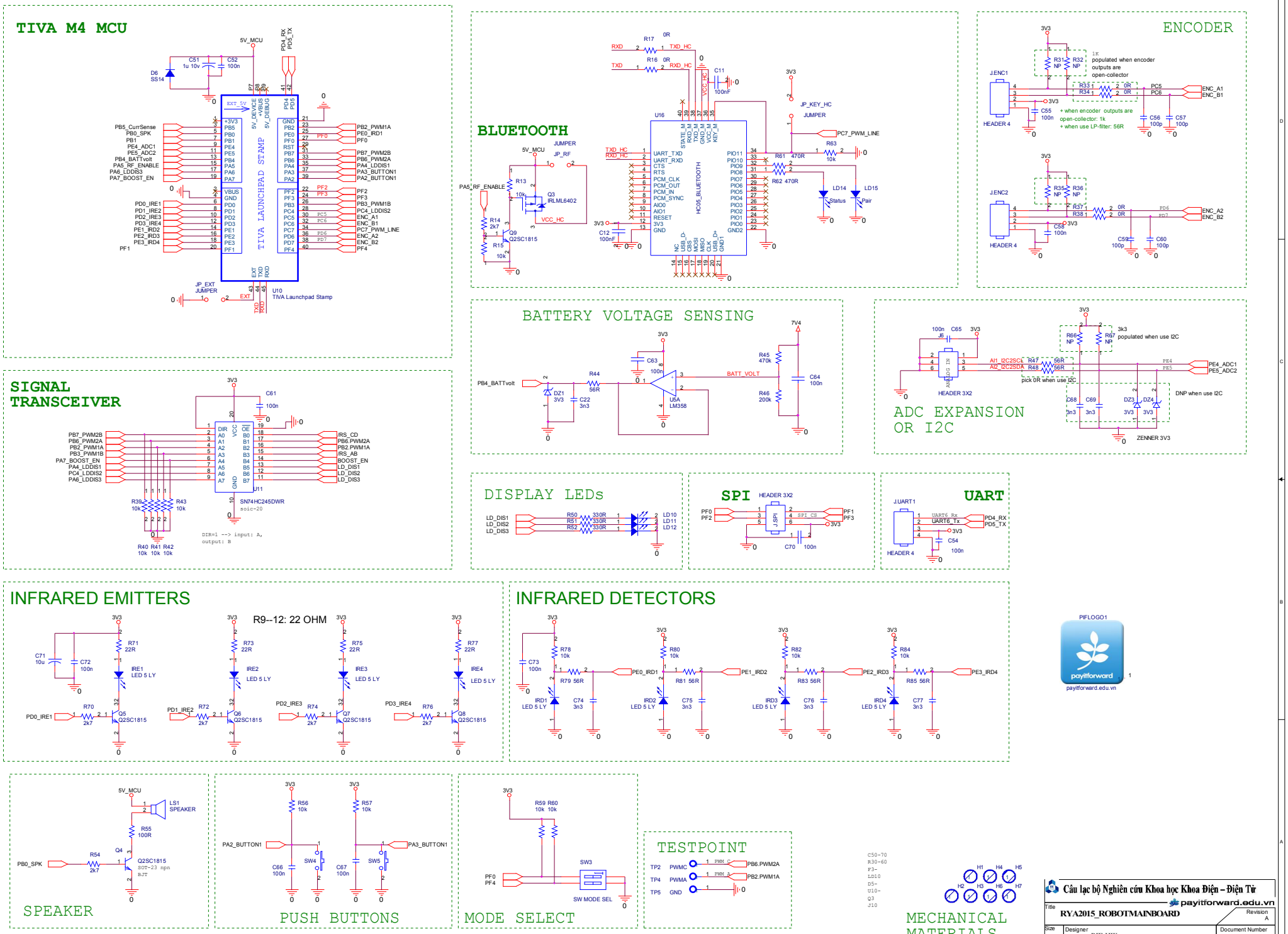
TIVA M4 MCU
5V_MCU
C51 1u 10v
C52 100n
D6 SS14
PD4_RX PD5_TX
EXT_5V
5V_DEVICE
VBUS
5V_DEBUG
PB5_CurrSense
PB0_SPK
PB1
PE4_ADC1
PE5_ADC2
PB4_BATTvolt
PA5_RF_ENABLE
PA6_LDDIS3
PA7_BOOST_EN
PD0_IRE1
PD1_IRE2
PD2_IRE3
PD3_IRE4
PE1_IRD2
PE2_IRD3
PE3_IRD4
PF1
PB2_PWM1A
PE0_IRD1
PF0
PB7_PWM2B
PB6_PWM2A
PA4_LDDIS1
PA3_BUTTON1
PA2_BUTTON1
PF2
PF3
PB3_PWM1B
PC4_LDDIS2
ENC_A1
ENC_B1
PC7_PWM_LINE
ENC_A2
ENC_B2
PF4
TIVA LAUNCHPAD STAMP
JP_EXT JUMPER
EXT
U10 TIVA Launchpad Stamp
BLUETOOTH
JUMPER
JP_RF
Q3 IRLML6402
VCC_HC
Q9 Q2SC1815
R13 10k
R14 2k7
R15 10k
PA5_RF_ENABLE
R17 0R
R16 0R
RXD
TXD
TXD_HC
RXD_HC
C11 100nF
C12 100nF
U16
HC05_BLUETOOTH
UART_TXD
UART_RXD
CTS
RTS
PCM_CLK
PCM_OUT
PCM_IN
PCM_SYNC
AIO0
AIO1
RESET
3V3
GND
PIO11
PIO10
PIO9
PIO8
PIO7
PIO6
PIO5
PIO4
PIO3
PIO2
PIO1
PIO0
GND2
JP_KEY_HC
JUMPER
PC7_PWM_LINE
R63 10k
R61 470R
R62 470R
LD14 Status
LD15 Pair
ENCODER
J.ENC1
HEADER 4
R31 NP
R32 NP
1K
populated when encoder outputs are open-collector
R33 0R
R34 0R
PC5
PC6
ENC_A1
ENC_B1
C55 100n
+ when encoder outputs are open-collector: 1k
+ when use LP-filter: 56R
C56 100p
C57 100p
J.ENC2
R35 NP
R36 NP
R37 0R
R38 0R
PD6
PD7
ENC_A2
ENC_B2
C58 100n
C59 100p
C60 100p
BATTERY VOLTAGE SENSING
PB4_BATTvolt
DZ1 3V3
R44 56R
C22 3n3
C63 100n
U5A LM358
BATT_VOLT
R45 470k
R46 200k
C64 100n
7V4
ADC EXPANSION OR I2C
J6
HEADER 3X2
ANALOG IN
100n C65
AI1_I2C2SCL
AI2_I2C2SDA
R47 56R
R48 56R
pick 0R when use I2C
R66 NP
R67 NP
3k3
populated when use I2C
PE4
PE5
PE4_ADC1
PE5_ADC2
C68 3n3
C69 3n3
D23 3V3
D24 3V3
DNP when use I2C
ZENNER 3V3
SIGNAL TRANSCEIVER
C61 100n
PB7_PWM2B
PB6_PWM2A
PB2_PWM1A
PB3_PWM1B
PA7_BOOST_EN
PA4_LDDIS1
PC4_LDDIS2
PA6_LDDIS3
/RS_CD
PB6.PWM2A
PB2.PWM1A
/RS_AB
BOOST_EN
LD_DIST
LD_DIS2
LD_DIS3
R39 10k
R43 10k
R40 10k
R41 10k
R42 10k
SN74HC245DWR
soic-20
U11
DIR=1 --> input: A, output: B
DISPLAY LEDs
LD_DIS1
LD_DIS2
LD_DIS3
R50 330R
R51 330R
R52 330R
LD10
LD11
LD12
SPI
HEADER 3X2
PF0
PF2
PF1
PF3
SPI_CS
C70 100n
UART
J.UART1
HEADER 4
UART6_Rx
UART6_Tx
PD4_RX
PD5_TX
C54 100n
INFRARED EMITTERS
R9--12: 22 OHM
R71 22R
R73 22R
R75 22R
R77 22R
C71 10u
C72 100n
IRE1 LED 5 LY
IRE2 LED 5 LY
IRE3 LED 5 LY
IRE4 LED 5 LY
PD0_IRE1
PD1_IRE2
PD2_IRE3
PD3_IRE4
R70 2k7
R72 2k7
R74 2k7
R76 2k7
Q5 Q2SC1815
Q6 Q2SC1815
Q7 Q2SC1815
Q8 Q2SC1815
INFRARED DETECTORS
R78 10k
R80 10k
R82 10k
R84 10k
C73 100n
PE0_IRD1
PE1_IRD2
PE2_IRD3
PE3_IRD4
R79 56R
R81 56R
R83 56R
R85 56R
IRD1 LED 5 LY
IRD2 LED 5 LY
IRD3 LED 5 LY
IRD4 LED 5 LY
C74 3n3
C75 3n3
C76 3n3
C77 3n3
PIFLOGO1
payitforward
payitforward.edu.vn
SPEAKER
5V_MCU
LS1 SPEAKER
R55 100R
R54 2k7
Q4 Q2SC1815
SOT-23 npn BJT
PB0_SPK
PUSH BUTTONS
R56 10k
R57 10k
PA2_BUTTON1
PA3_BUTTON1
SW4
SW5
C66 100n
C67 100n
MODE SELECT
R59 10k
R60 10k
SW3
SW MODE SEL
TESTPOINT
TP2 PWMC
TP4 PWMA
TP5 GND
PB6.PWM2A
PB2.PWM1A
C50-70
R30-60
F3-
LD10
D5-
U10-
Q3
J10
MECHANICAL MATERIALS
H1
H2
H3
H4
H5
H6
H7
Câu lạc bộ Nghiên cứu Khoa học Khoa Điện – Điện Tử
payitforward.edu.vn
Title
RYA2015_ROBOTMAINBOARD
Revision A
Size C
Designer PIF.HWteam
Document Number 1.MAINBOARD
Date: Monday, July 27, 2015
Sheet 1 of 3