STL SI727 Circuit Description

A. MAIN unit

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1. The main unit is controlled by the MCU U101.
2. T101 is a reset circuit to reset the MCU during power on.
3. When the START key is pressed, the MCU turns on the wheel motors, brush motor and vacuum motor and runs on the floor automatically.
4. When the bumper of the main unit hits something, the MCU detects by the IR sensors (PT6 or PT7) and then try to find a better way to run.
5. When the floor sensors of the main unit (PT1-PT4) detects a step, the MCU turns backward to prevent dropping out of the step.
6. When the Wall sensor of the main unit (PT5) detects the wall, the MCU controls the wheel motors to run along the wall.
7. The main unit can also be controlled by a remote control unit through the RF receiver T401, U402 and U101.
8. The MCU detects the voltage of the battery through ZD4 and T511. When the battery voltage is too low, the MCU stops running, turns on the low battery LED (red) and waiting for charge.
9. When the 18V adapter is connected to the main unit, the battery is charged through the current source (FET2, U500, T503, T504) and the Charger Controller IC U501. The Charger Controller IC U501 also sends a signal to the MCU when the battery is fully charged.

B. REMOTE unit

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1. When any key is pressed, the power control circuit turns on the power to the Encoder IC and the RF transmitter circuit for a few seconds. After timeout the power is cut off to save the battery power.
2. The Encoder IC U2 generates some codes to transmit to the main unit through the RF transmitter circuit T4. The frequency is 433.92MHz.