

Automatic Delivery Machine

ME 3484

Group 2

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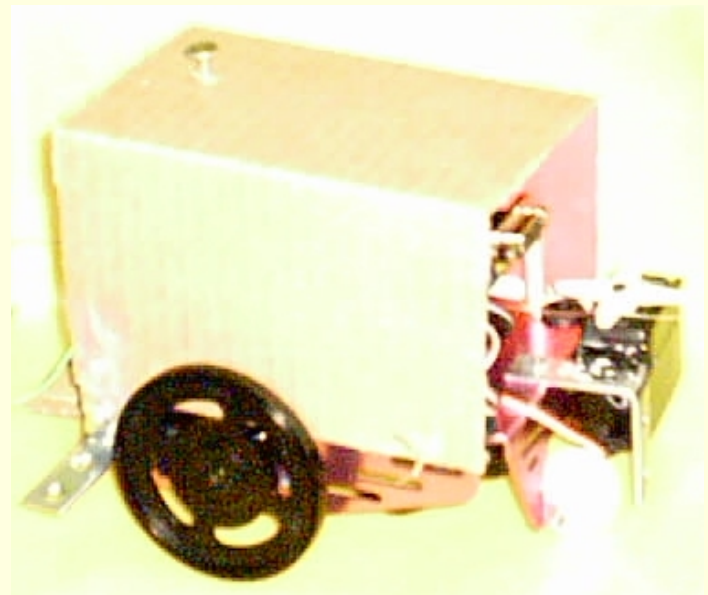
Kun Hei Fong

Overview

- Design Purpose
- Equipments List
- Sensors
- Circuits
- Codes
- Safety
- Price range
- Problems
- Improvements
- Conclusion

Design Purpose

- Design for warehouses
- Move products to selected location
- Save Labor



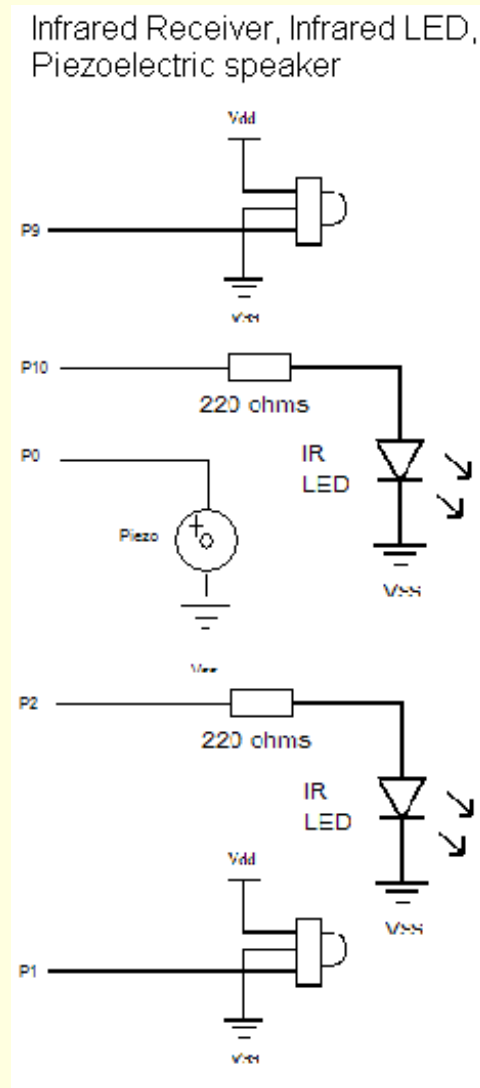
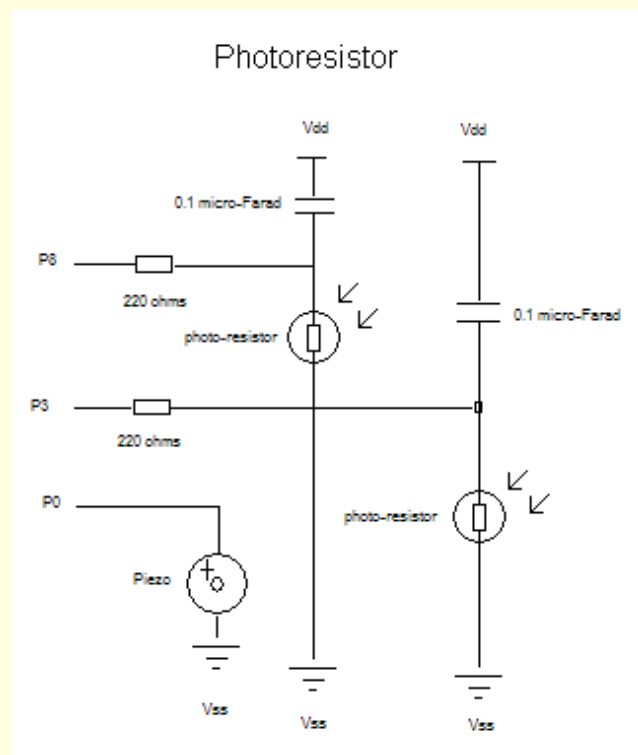
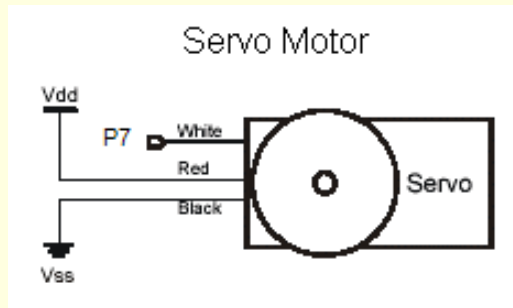
Equipment List

- Robotic Kit
 - Infrared LED
 - Infrared Receiver
 - Piezoelectric Speaker
 - Photoresistor
 - Wires
 - Capacitors
 - Resistors
 - Servo Motors
- 8 positions DIP switch
 - 15 mA 24 V DC
- Jumbo Super Bright LED
 - 5000mcd intensity
 - 20 mA 2.4 V DC
- Basic Stamp 2
- Board of Education
- Servomotor

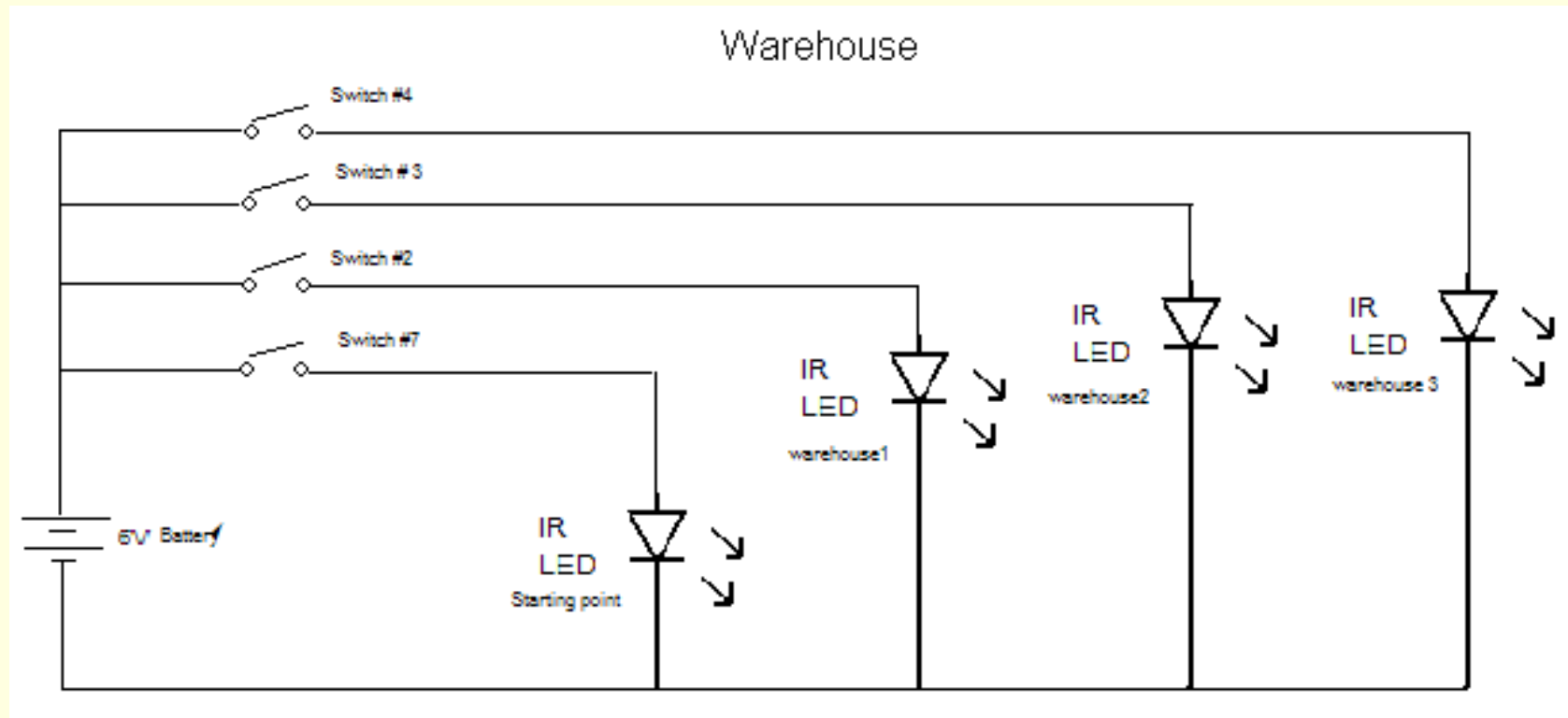
Sensors

- Analog
 - Piezoelectric speaker
 - Low power indicator
- Digital
 - Photoresistor
 - Follows light
 - Infrared LED
 - Sends out signal
 - Infrared Receiver
 - Receive bounce back signal

Circuit



Circuit



Codes

- P – Basic Codes:

- ..\My Documents\My Received Files\k.txt

Safety

- Infrared LED sends out signal
- Infrared Receiver
 - Receive bounce back signal
 - Turn left or right until nothing block its way
 - No bound back signal
 - Follows light move forward

New Market Line

- Indoor stores and supermarkets
 - Add alarm to notice when block its way
 - With color sensors – follows color lines
 - Less expensive materials – reduce cost

Total Cost

■ Model

- Robotic Kit: \$143.69
- Basic Stamp and board of education: \$100.00
- 8 positions dip switch: \$2.00
- Super Bright LED: \$8.00
- Cardboard: \$2.00
- Wires: \$2.00
- Battery Holder: \$5.00
- Batteries: \$5.00

Total: \$267.69

■ Machine (Estimate)

Warehouses: \$6,000

Supermarkets: \$2,500

Problems

- Speed too fast products might fall
- Weak of light source
 - Need a long period of time to detect
 - Might end up in wrong direction
- Products too heavy might end up over loaded

Improvements

- Better photoresistor
 - Detect light source better - get to the selected destination faster
 - Can be use under sunlight or normal lighting condition - not only in the dark
- Better materials (metal string and gear)
 - Lift up products smoother
 - Deliver heavier products
- Add digital scale
 - Tell if products too heavy to move

Conclusion

- Save labor salaries
- Save electricity
- Save time
- Safe to use
- Easy to operate
- Low in budget
- Large market demand