

Research

- Amazon go
- 魔盒citybox
- Other 共享雨伞 / 自动储物柜
- Smart door lock
- 各种小区的商用门锁 — Charlie已researched

Plan outline

- Hardware
 - 1 door lock
 - 单片机+磁力门贴+门缓冲臂
 - Arduino + servo + 灯（显示状态）
 - 1 metal cabinet
 - 每一个隔间中需要一个判断有没有雨伞的sensor
 - Distance detect (Ultrasonic, laser, infrared) —> 不需要灯也能detect
 - 侧面+ 正面
 - camera(备选方案, 需要光, 每个隔间黑不溜秋的屁都看不到)
 - physical bump for the 雨伞, if雨伞的尖尖捅到, 但是很可能有人没有碰到, 然后就没有识别然后走人
- Front end
 - user identification: 绑 wechat & QR code
 - Object identification: mechanical or opencv camera
 - Wechat 小程序
- Back end
 - Controller: raspberry pi / arduino
 - User database on offsite servers
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- Mechanism
- Protection
 - Waterproof shell (3D printing)
 - 理线
 - 对Arduino单片机的单独protection

Potential problems

- Sustainability of the door lock
- 排水问题
- 发臭问题(需要有人定是更换清理)
- Database 和Arduino 连接的responding time

Timeline and person in charge

- 做完一个共享雨伞的prototype
 - research, 出一个(或多个)初步方案(1-2周)
 - 采集零件(1周)
 - 按照网上方案进行拼接(1-2周)

- 做别的两种伞(如果锁的系统非常successful)竖着的/横着的

Projected expense

- Arduino + servo + 灯(显示状态) — ¥0 在GT 里白嫖
- 单片机+磁力门贴(¥49-68)+门缓冲臂(¥80-130) — ¥200-400
- 一台闲置电脑(作database, 和多个Arduino板的wifi connection)
- 柜子—铁的, 做一个个subunit (Eg. 5x5), 做完像积木一样一个个拼起来, 这样size比较flexible

Local pc - server

- Online: pc update [time, state] in time.py. Server verifies it
- Open or not: server update [time, command] in command.py. Pc reads it
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Commends: open door, close door.

State: sensor inputs.

Timeline

Week No.	Plan
9.16-22	research
9/23-29	research
9.30-10.6	Material gathering
10.7-13	
10.14-20	
10.21-27	
10.28-11.3	
11.4-10	
11.11-17	
11.18-24	
11.25-1	
12.2-8	
12.9-15	
12.16-22	
12.23-29	

Roles for each member

Member	Role
Charlie	3D printing + 硬件
Oreo	微信小程序
Andy	后端
Tim	单片机
Hugo	carbinet
Nathan	服务器+database

Nathan 做database + 服务器/dataset

Charlie + Andy + Tim Arduino后端

Hugo 1)