



Motor Security



Supervisor
Ph. D Phan Duy Hung



Team Leader
Developer
Tran Cong Nguyen



Tester Leader
Q&A
Tran Duc Hanh

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- 1. Introduction**
- 2. Project Management**
- 3. Systems Architecture Design**
- 4. Hardware Design**
- 5. Firmware Design**
- 6. Application Design**
- 7. Implement and Testing**
- 8. Project Result**
- 9. Demo and QA**

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Background

Dân Việt sở hữu xe máy nhiều thứ 2 thế giới

25/07/2015 08:17 GMT+7

Có nhiều người cho rằng, người dân Việt Nam sở hữu nhiều xe máy nhất thế giới. Nhưng không phải, Đài Loan mới là vô địch.

Xe máy Tàu: Những số phận còn lại
Chưa làm ôtô, Việt Nam thành cường quốc xe máy
Biếm họa người Việt đi xe máy
[Xem bài khác trên Vef.vn](#)

Theo thống kê số lượng môtô, xe máy đã đăng ký những xe không còn lưu hành, là 42.818.527 chiếc, người, bình quân cứ 1.000 người dân sẽ sở hữu,

Hơn 1,4 triệu xe máy bán ra ở Việt Nam trong nửa đầu 2016

11:24 11/07/2016

ZING.VN Sáu tháng đầu năm 2016, số lượng xe máy được tiêu thụ đạt 1.444.182 chiếc, tăng 8% so với cùng kỳ năm 2015. Hiệp hội Các nhà sản xuất xe máy Việt Nam (VAMM) vừa công bố doanh số bán hàng 6 tháng đầu 2016. Theo đó, tính từ tháng 1 đến hết tháng 6, người Việt đã mua 1.444.182 xe máy. Mức tăng ước đạt khoảng 8% so với cùng kỳ năm 2015.

Background

Dân trí › Ô tô - Xe máy ›

Chống trộm xe máy: người dùng đang loay hoay?

Chia sẻ



Thích

0

G+1



Gửi

Theo con số thống kê mới đây của CATP Hà Nội, cứ 10 vụ mất trộm tài sản thì có từ 3-4 vụ có liên quan đến môtô, xe máy. Để bảo vệ tài sản giá trị của mình, không ít người dùng loay hoay trước hàng loạt thiết bị chống trộm không rõ nguồn gốc, xuất xứ trên thị trường.

Trộm cắp xe máy: diễn biến ngày càng phức tạp

Background



Background



Background



Background



Background

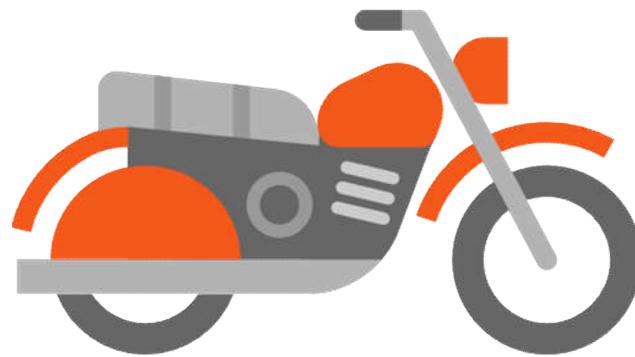
➤ 2015

**Vietnam was in top 2 countries using motor in the World
(According to the Vietnamnet.vn newspaper).**

➤ 2015

**Vietnam was in top 4 Asian countries using smartphones
(According to the Mobile Marketing Association MMA Forum 2015).**

The Ideas



Main Objectives

Create a product with features:

- Control motor better
- Have finding feature when motor has been lost
- Create useful application



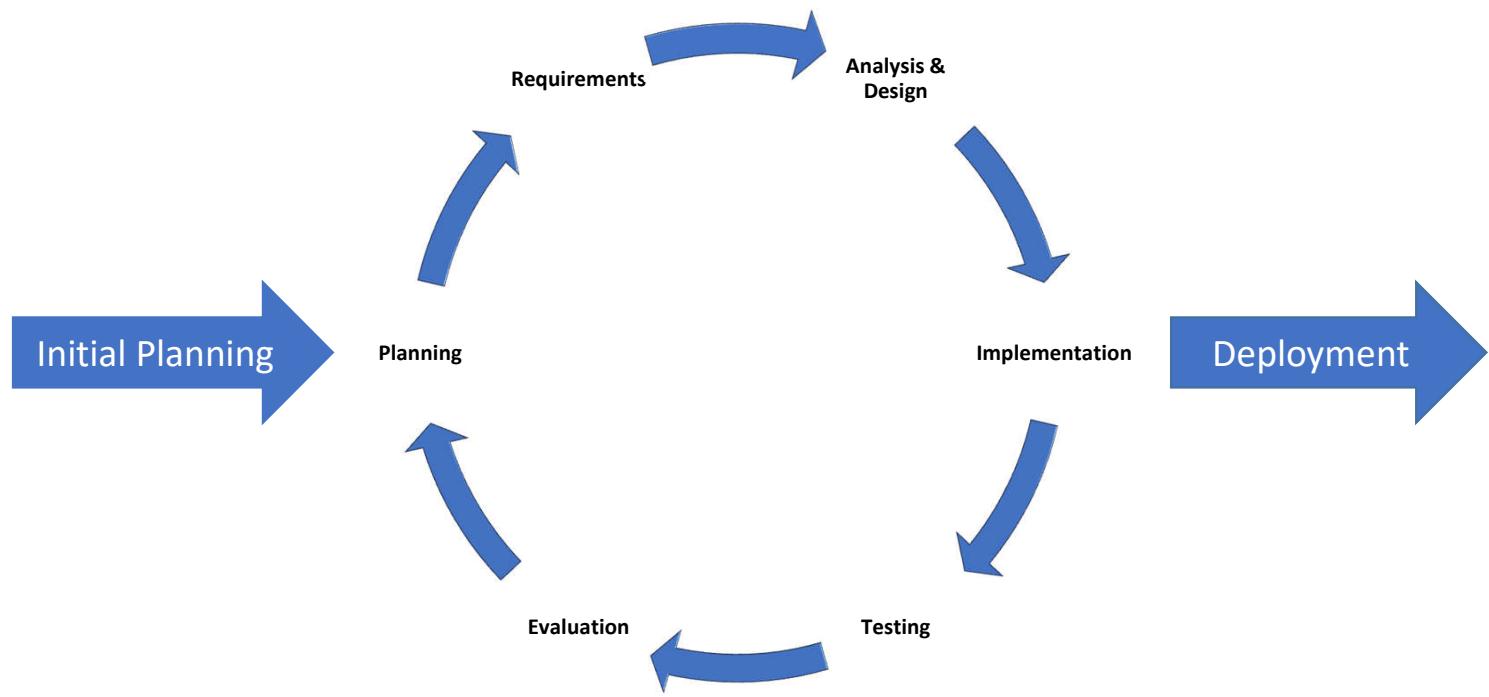
Product



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Process Model



Iterative and Incremental Software Process Model

Team Work

- Time: 4 hours / day, 4 days/ week

- Location: FPT University Hoa Lac

- Communication:



- Supervisor meeting: Once a week

- Teambuilding: Once a week

Project Planning

| ID | Task Mode | Task Name | Duration | Start | Finish | Predecessors | Resource Names | Qtr 1, 2017 | Jan | Feb | Mar | Qtr 2, 2017 | Apr |
|----|-----------|--|----------|--------------|--------------|--------------|------------------|-------------|-----|-----|-----|-------------|-----|
| 1 | | Motor Security Project | 79 days | Wed 04/01/17 | Mon 24/04/17 | | | | | | | | |
| 2 | | Initiating | 8 days | Wed 04/01/17 | Fri 13/01/17 | | | | | | | | |
| 3 | | Develop Project Charter | 8 days | Wed 04/01/17 | Fri 13/01/17 | | | | | | | | |
| 4 | | Kick off meeting | 1 day | Wed 04/01/17 | Wed 04/01/17 | | HanhTD | | | | | | |
| 5 | | Identify Goals and Objectives | 1 day | Thu 05/01/17 | Thu 05/01/17 | 4 | Nguyen TC,HanhD | | | | | | |
| 6 | | Specify roles and responsibilities | 2 days | Fri 06/01/17 | Mon 09/01/17 | 5 | Nguyen TC,HanhD | | | | | | |
| 7 | | Estimate project budget | 1 day | Tue 10/01/17 | Tue 10/01/17 | 6 | Nguyen TC | | | | | | |
| 8 | | Identify main project success criteria | 1 day | Wed 11/01/17 | Wed 11/01/17 | 7 | Nguyen TC,HanhDT | | | | | | |
| 9 | | Develop Project Charter | 2 days | Thu 12/01/17 | Fri 13/01/17 | 8 | Nguyen TC,HanhD | | | | | | |
| 10 | | Planning | 17 days | Mon 16/01/17 | Tue 07/02/17 | | | | | | | | |
| 31 | | Executing | 49 days | Wed 08/02/17 | Mon 17/04/17 | | | | | | | | |
| 66 | | Monitoring and Controlling | 3 days | Tue 18/04/17 | Thu 20/04/17 | | | | | | | | |
| 78 | | Closing | 2 days | Fri 21/04/17 | Mon 24/04/17 | | | | | | | | |
| 79 | | Close Project | 2 days | Fri 21/04/17 | Mon 24/04/17 | | | | | | | | |
| 80 | | Final Project Document | 1 day | Fri 21/04/17 | Fri 21/04/17 | | Nguyen TC,HanhD | | | | | | |
| 81 | | Review and Recognize Team Performance | 1 day | Mon 24/04/17 | Mon 24/04/17 | | Nguyen TC,HanhDT | | | | | | |

Risk Management

| Description | Avoidance plan | Contingency plan | Status |
|-------------|---|---|--------|
| The people | Team members will get some problems like illness, miscall, or have bad situation with health. | As soon as possible communicate with each other and create a small meeting. | Closed |
| Hardware | Configuration and testing make devices or module broken. | As soon as possible replace or buy new devices. Read correctly Datasheet. | Closed |
| Environment | In testing time, environment is wet, rain or hard to get GPS position. | Change time to re-test the test case or change location. | Closed |
| Time | Team members have problem with schedule. | Team leader creates new instance plan. Make the project meets deadline. | Closed |

Tool & Technologies



GitHub
V2.11



SQLite
V3.15.2



Google Chrome
V47



Balsamiq Mockup
V3.5.5



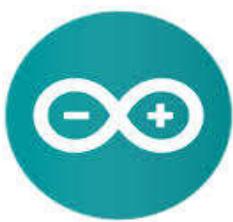
Microsoft Office
2016



Notepad++
V7.2.2



Google Drive



IDE Arduino
V1.8.1

Tool & Technologies



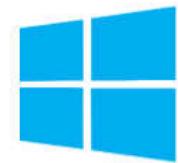
Fritzing
V0.9.3b



Android Studio
V2.2.3



Android platform

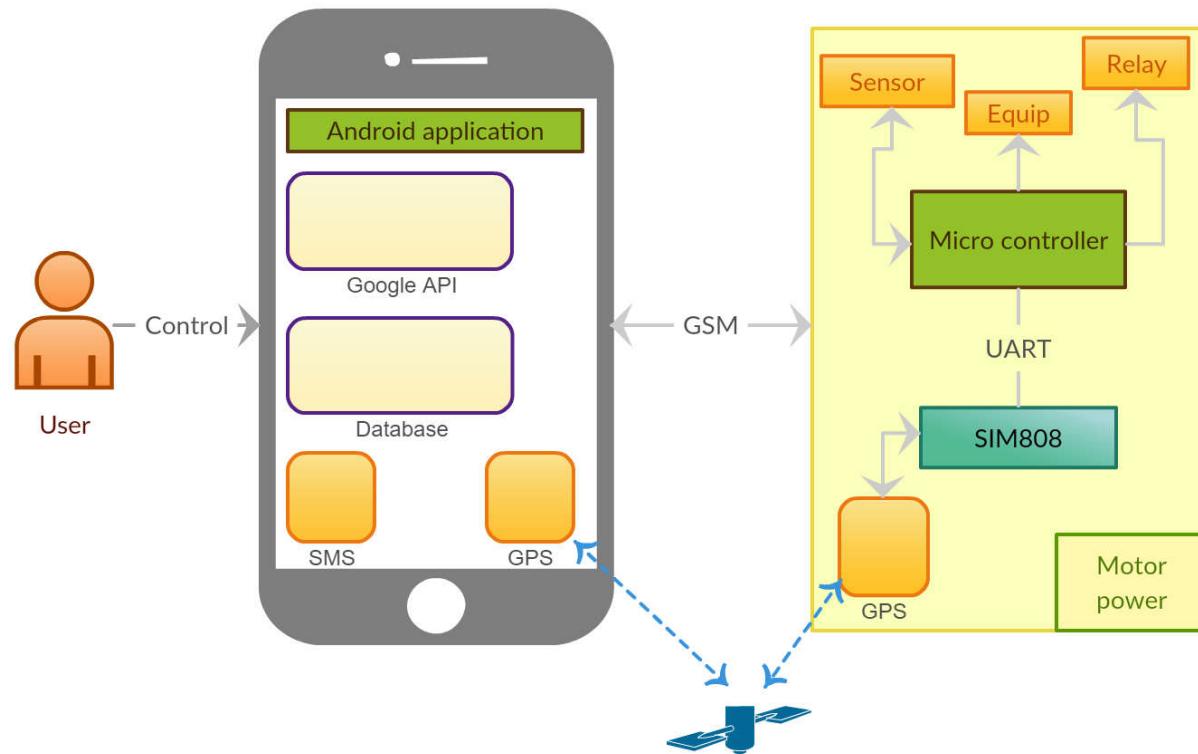


Windows 10
V10.0.14393

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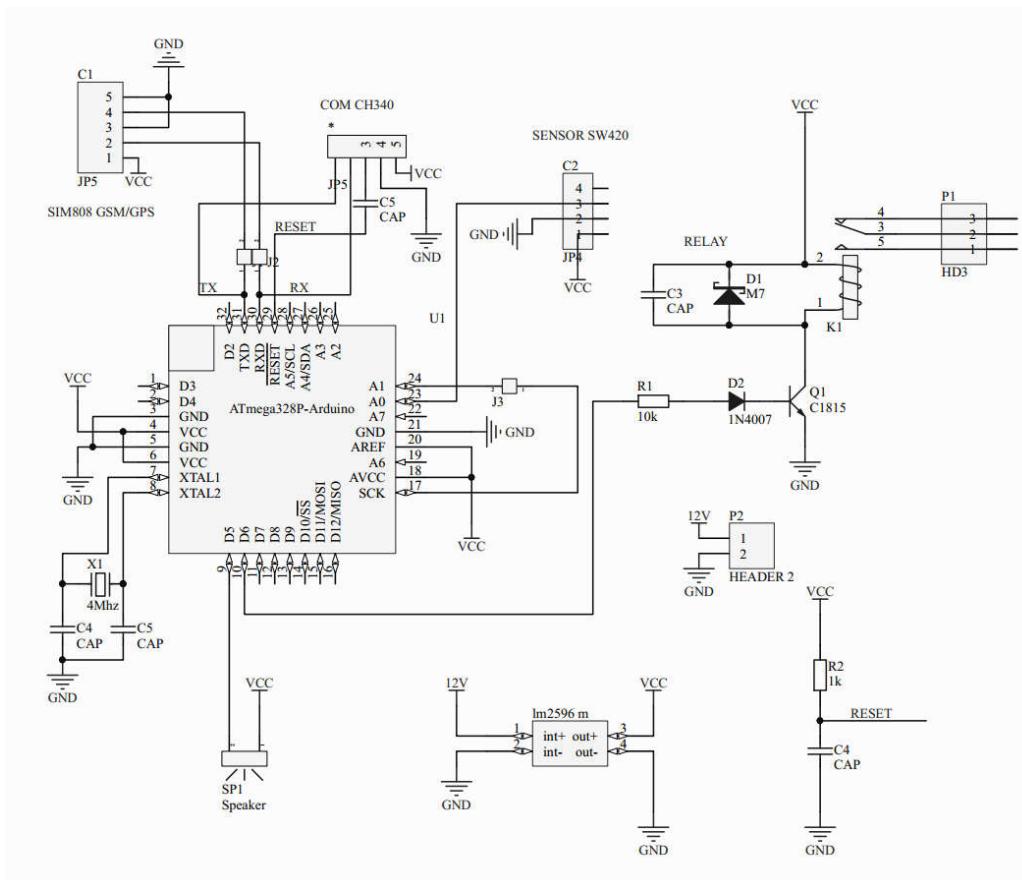
Architecture Overview



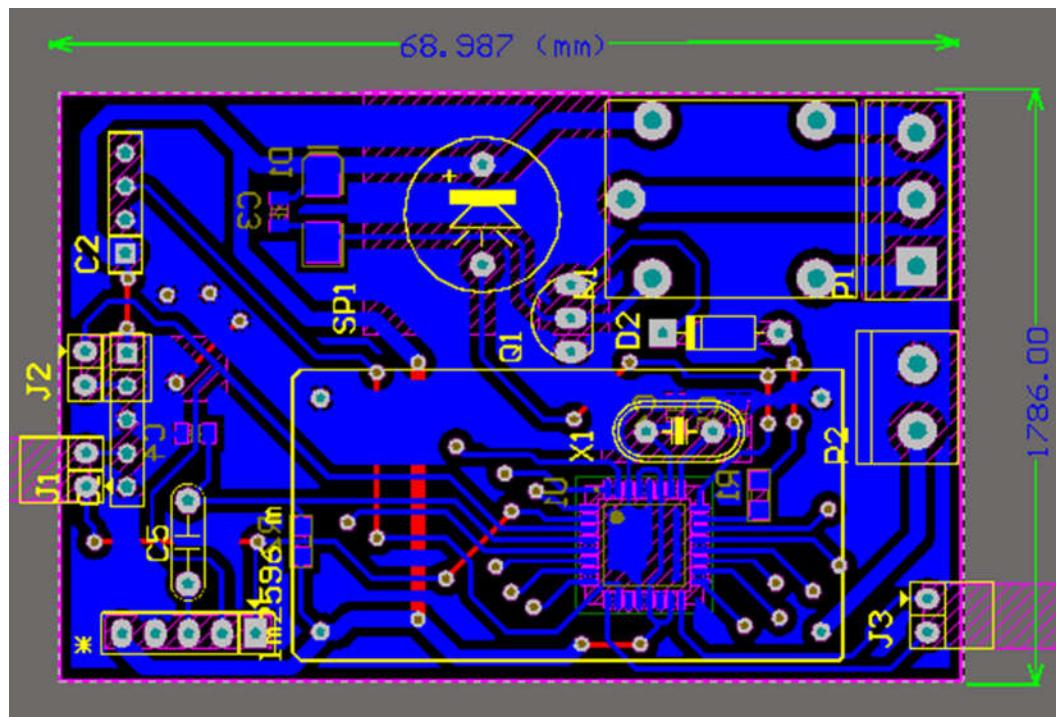
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Schematic



PCB Board Design



List of Hardware

- ✓ ATMega328P-AU TQFP32
- ✓ SIM808 GPS/GSM
- ✓ Vibration Sensor SW420
- ✓ LM2596 2A
- ✓ Box MS

List of Hardware

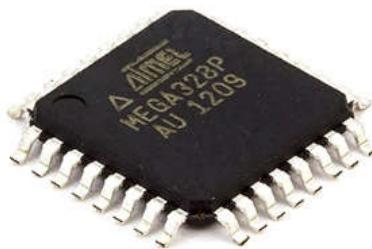
✓ ATMega328P-AU TQFP32

✓ SIM808 GPS/GSM

✓ Vibration Sensor SW420

✓ LM2596 2A

✓ Box MS



- **Program memory size:** 32KB
- **Program memory type:** FLASH
- **EEPROM size:** 1K
- **RAM size:** 2K
- **Core size:** 8-Bit
- **Voltage-Supply(Vcc/Vdd):** 1.8V-5.5V

List of Hardware

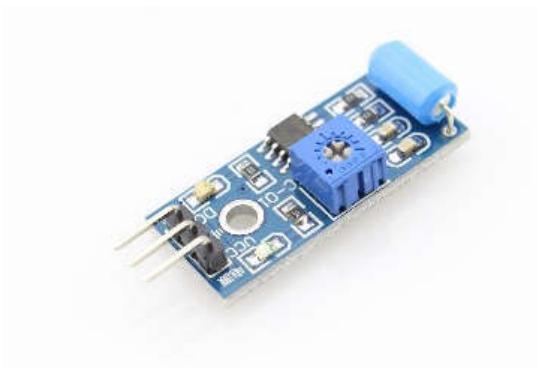
- ✓ ATMega328P-AU TQFP32
- ✓ SIM808 GPS/GSM
- ✓ Vibration Sensor SW420
- ✓ LM2596 2A
- ✓ Box MS



- Quad-Band 850/900/1800/1900MHz
- Control via AT commands
- Embedded TCP/UDP protocol
- GSM/GPRS
- Supply voltage range 3.4~4.4V
- Specifications for SMS via GSM/GPRS

List of Hardware

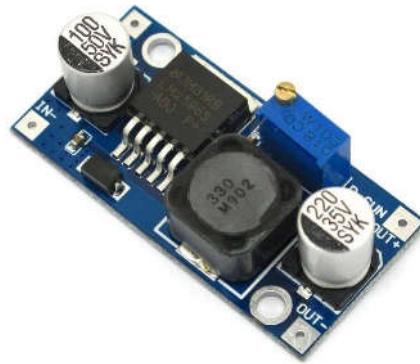
- ✓ ATMega328P-AU TQFP32
- ✓ SIM808 GPS/GSM
- ✓ Vibration Sensor SW420
- ✓ LM2596 2A
- ✓ Box MS



- Vibration Sensor Module - SW-420
- The default state of the with is close
- Digital output Supply voltage:3.3V-5V
- On-board indicator LED to show the results
- On-board LM393 chip Dimension of the board: 3.2cm x 1.4cm

List of Hardware

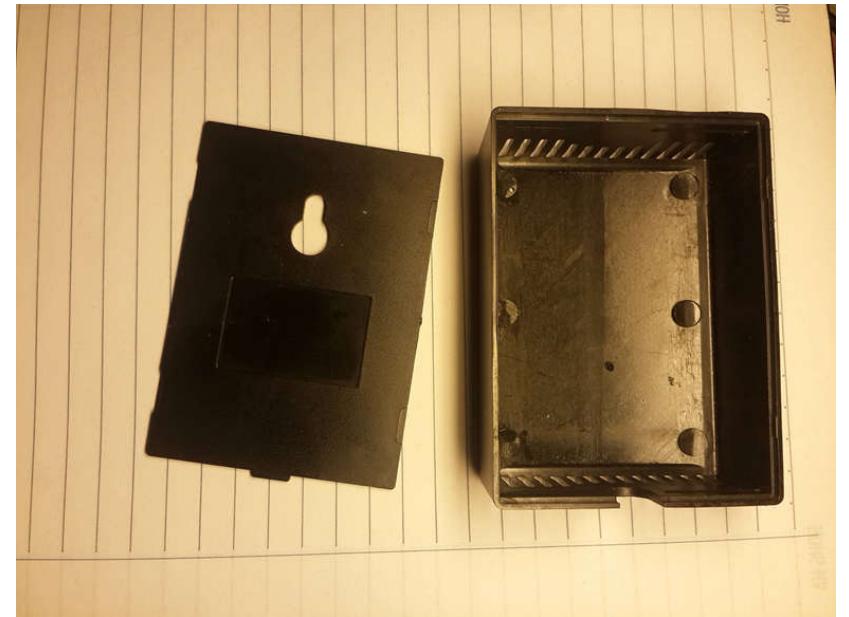
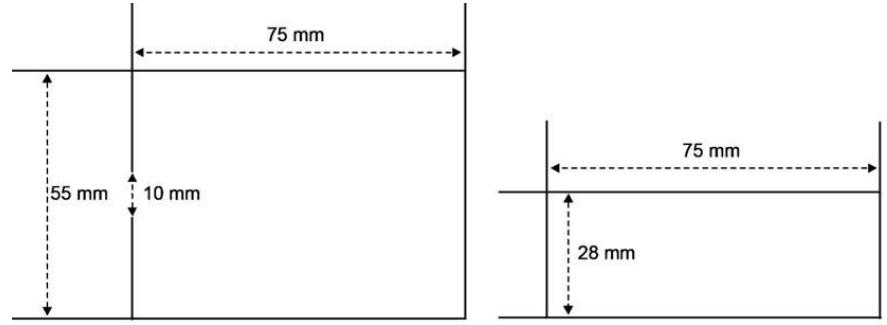
- ✓ ATMega328P-AU TQFP32
- ✓ SIM808 GPS/GSM
- ✓ Vibration Sensor SW420
- ✓ LM2596 2A
- ✓ Box MS



- In: 3 - 40V DC
- Out: 1.5 - 35V DC
- Max amperage: 2A.
- IC LM2596 ADJ.
- Dimensions 40x21.5x13.5
- Configure output by register

List of Hardware

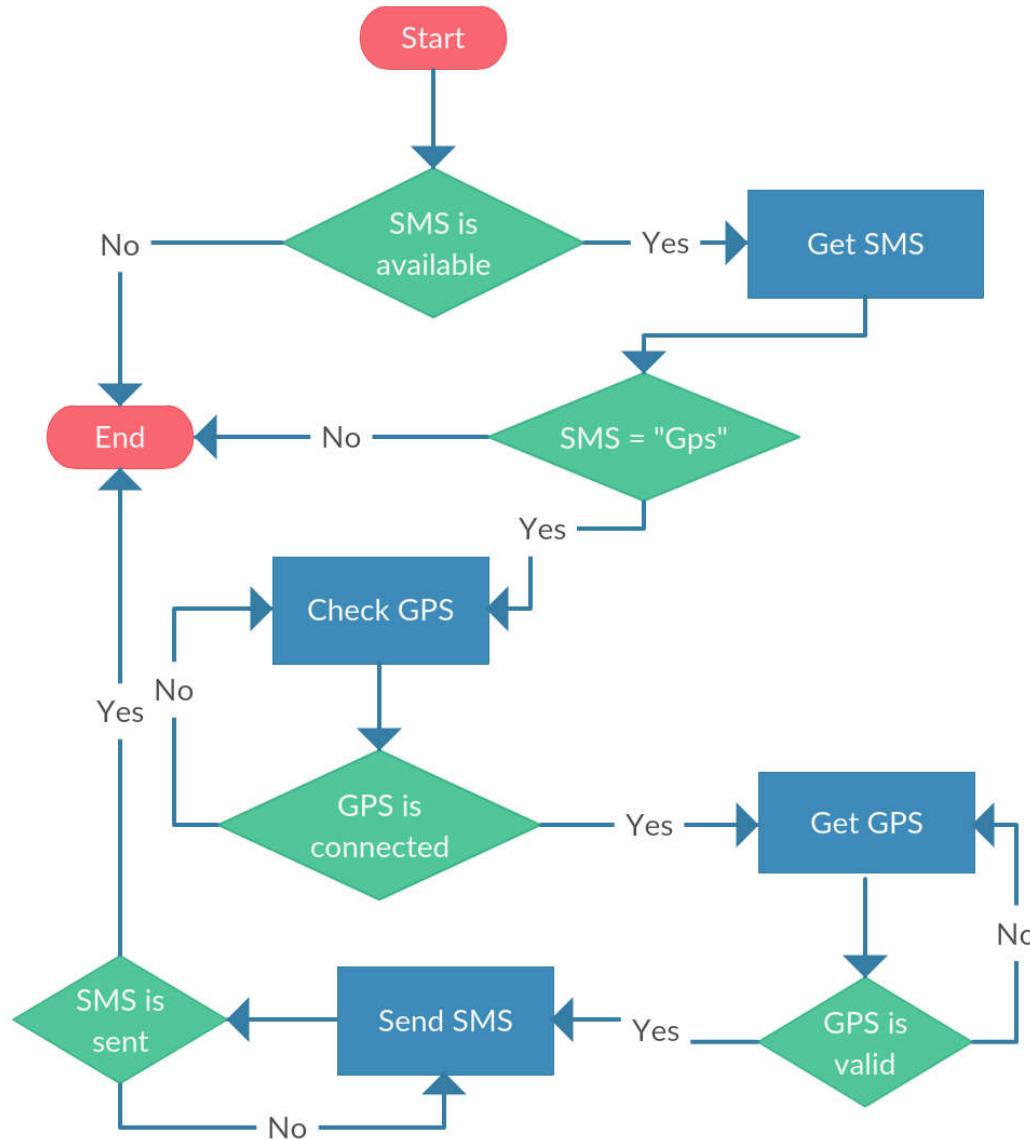
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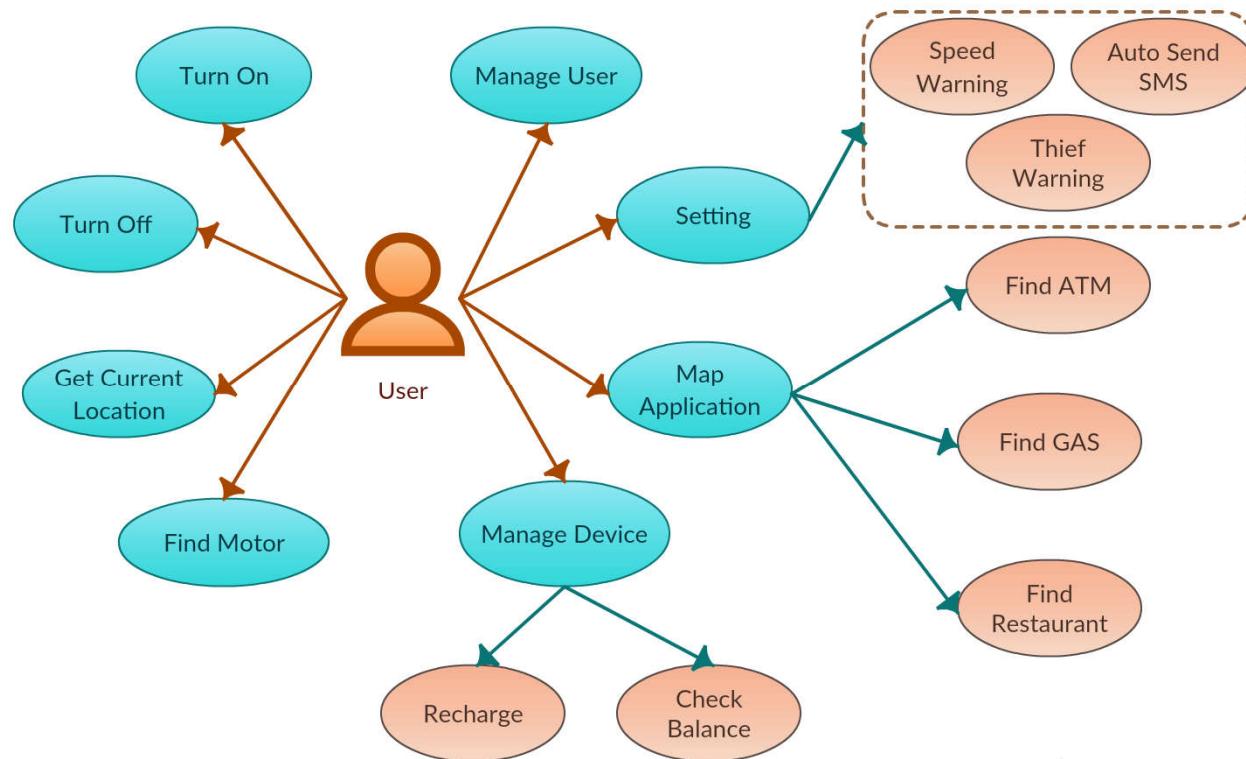
Firmware

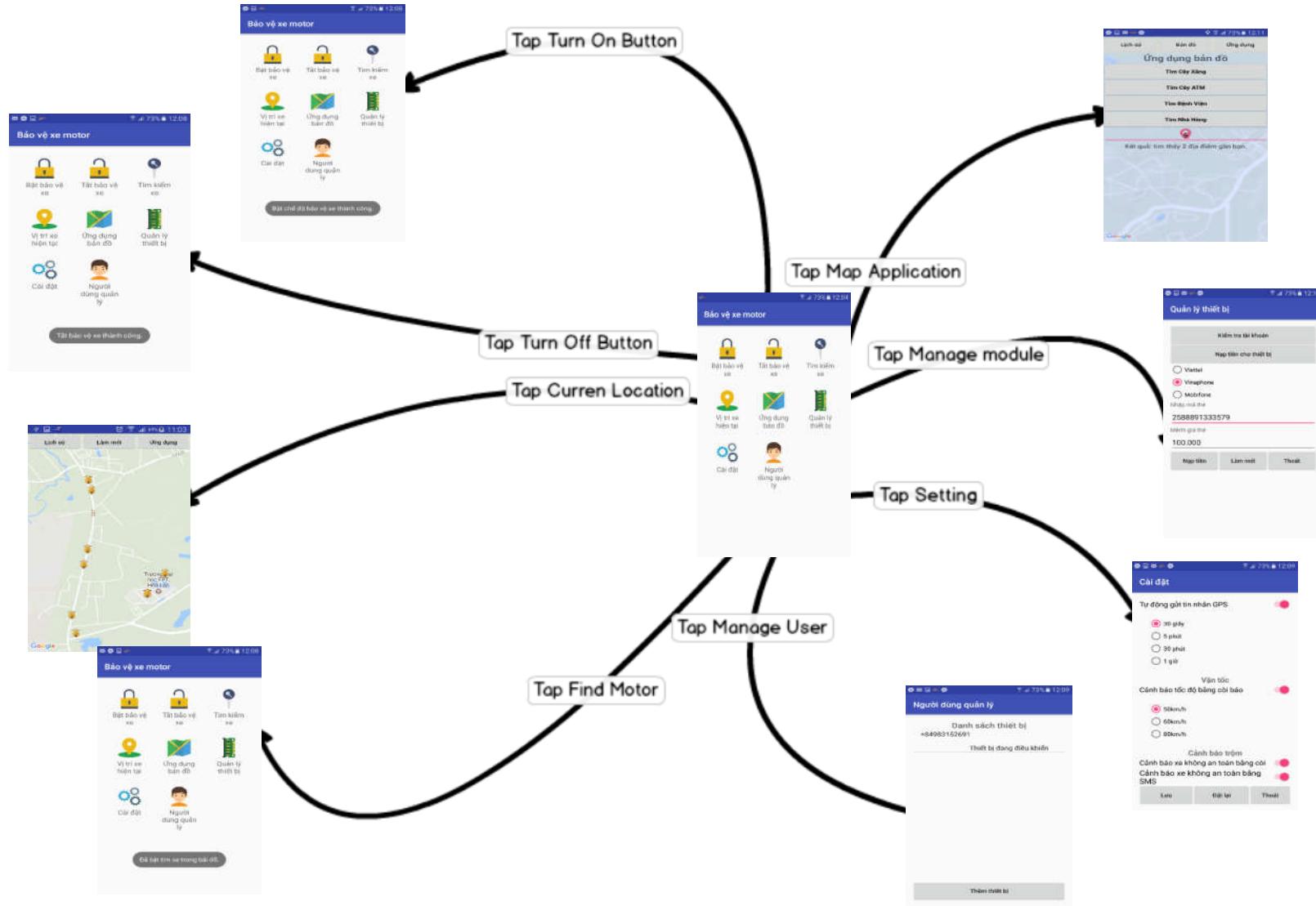


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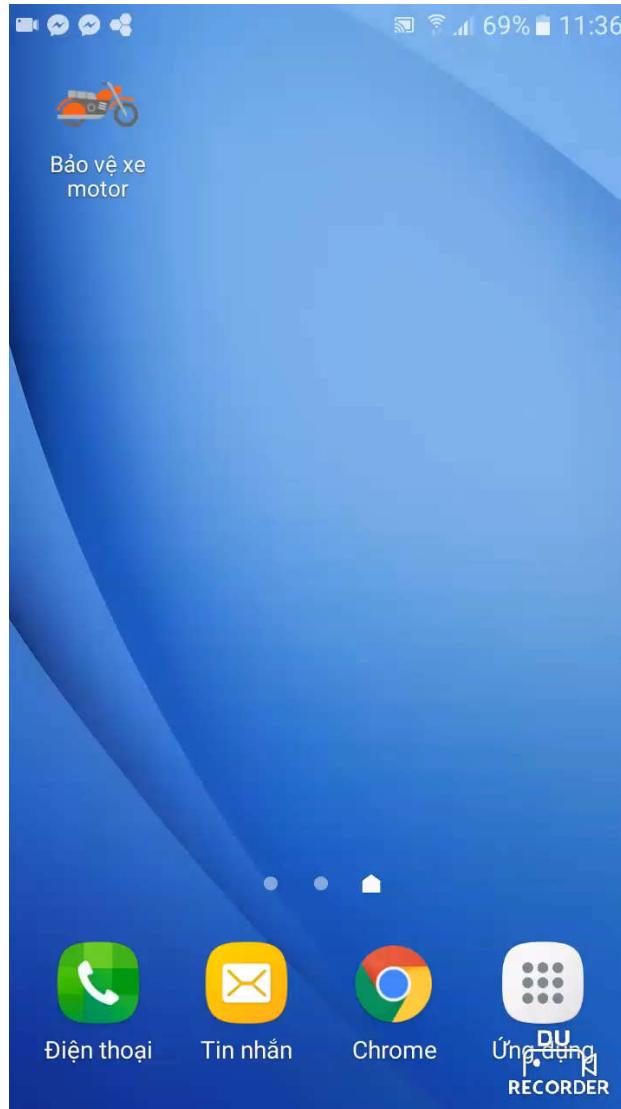
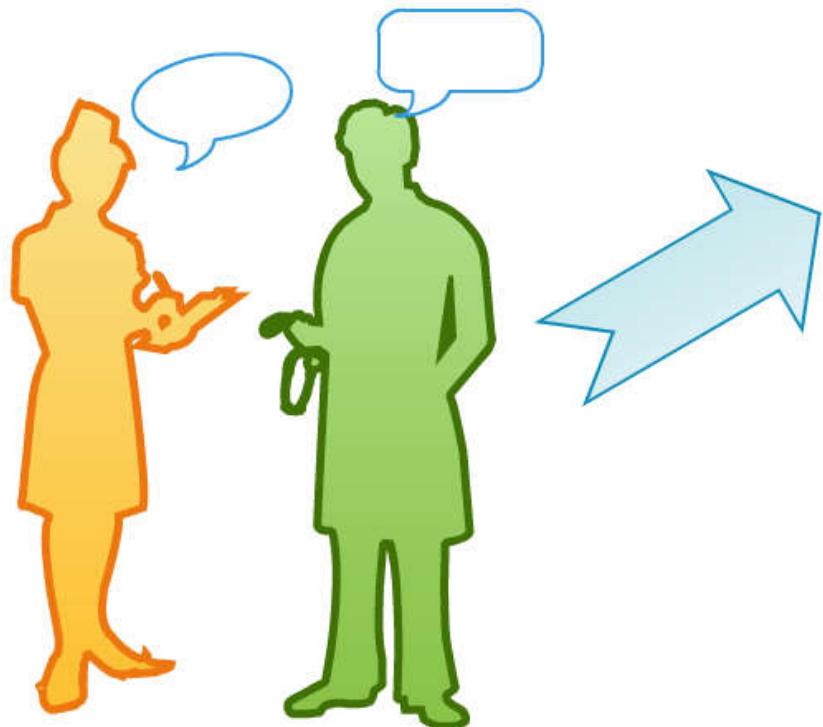
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Use case diagrams

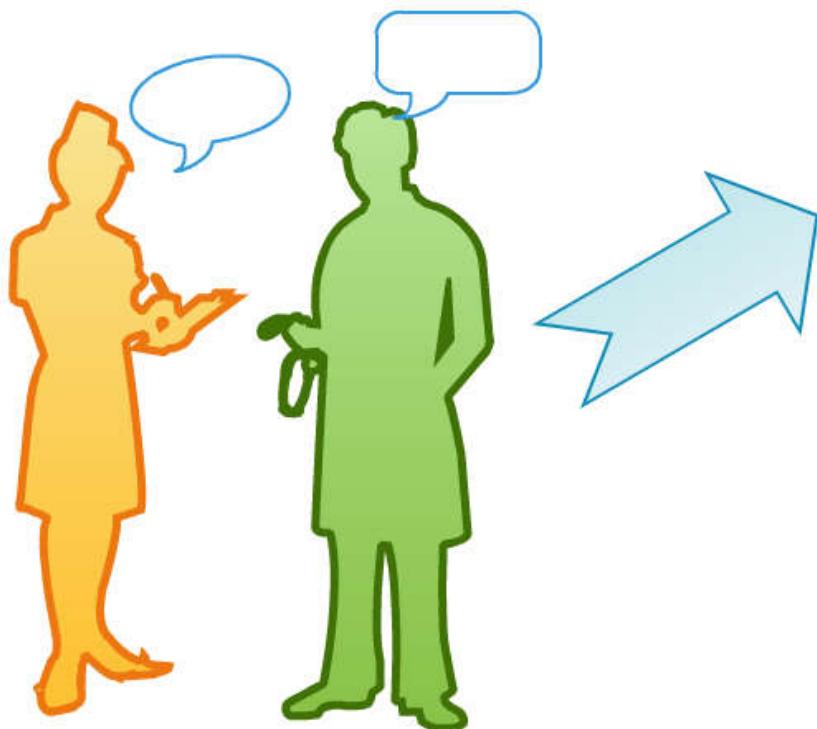




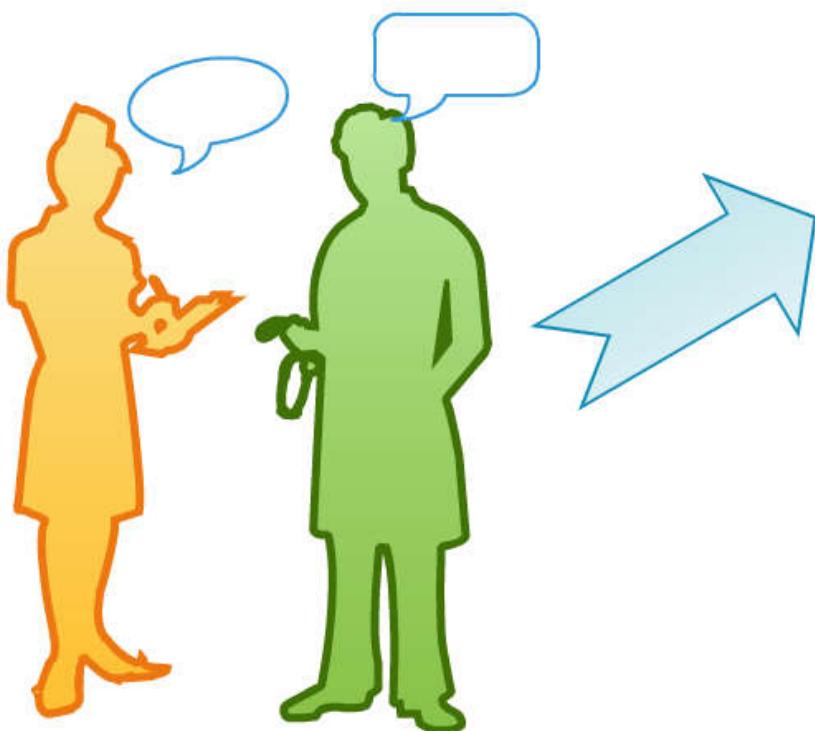
Device activation



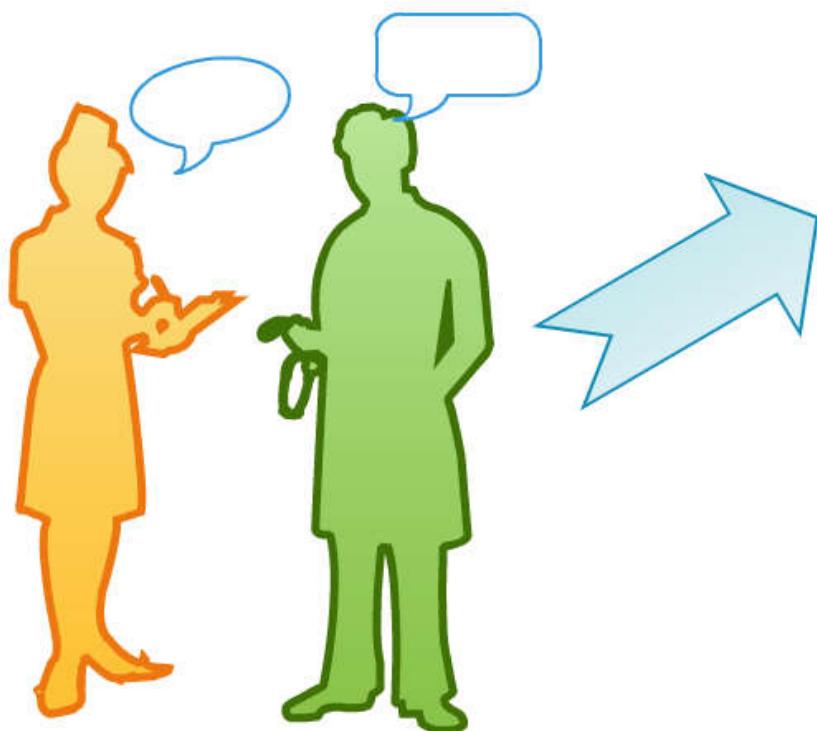
Turn on/off



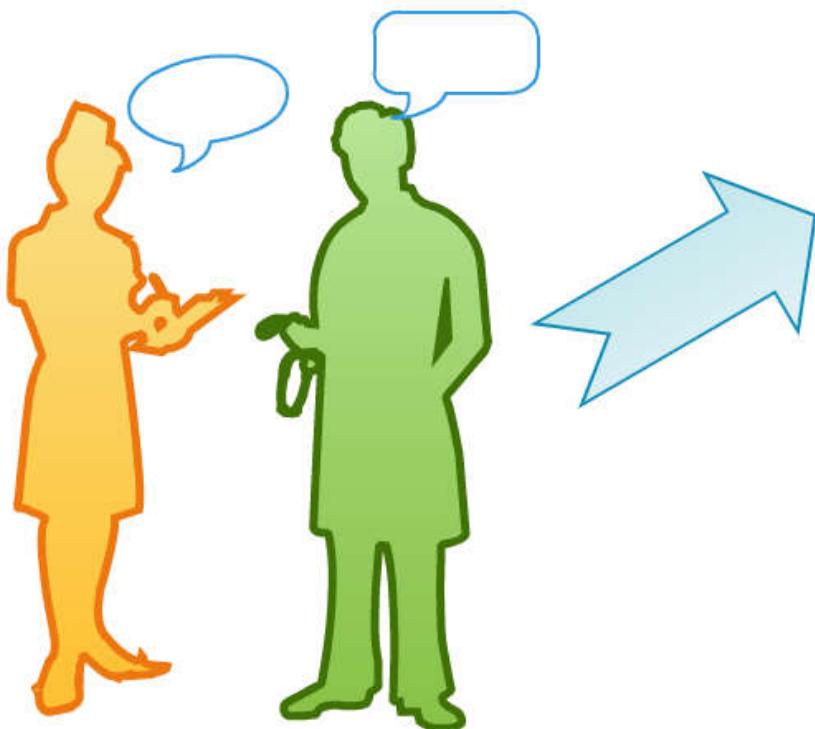
Current location



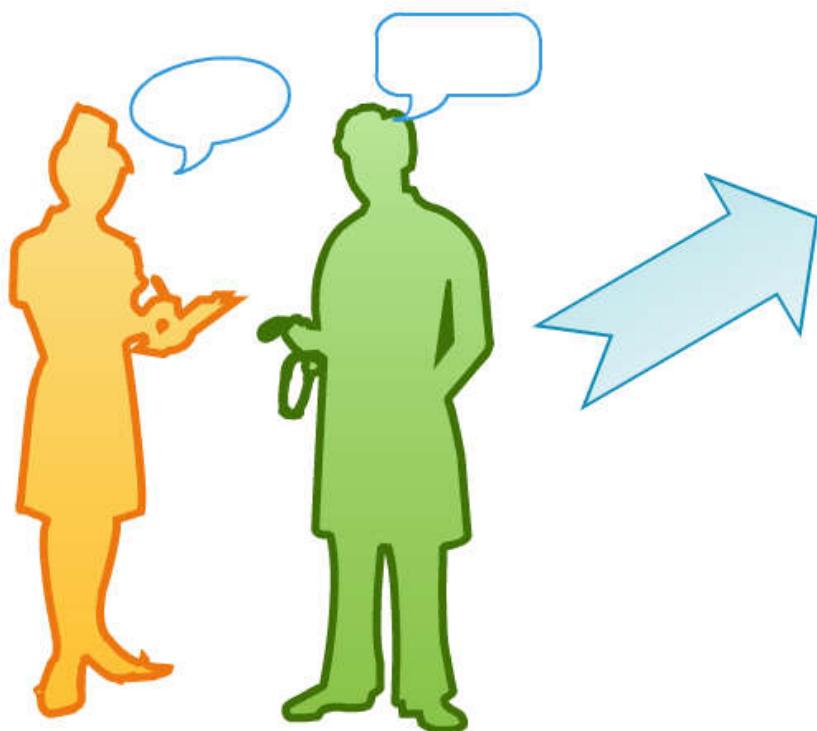
Find motor



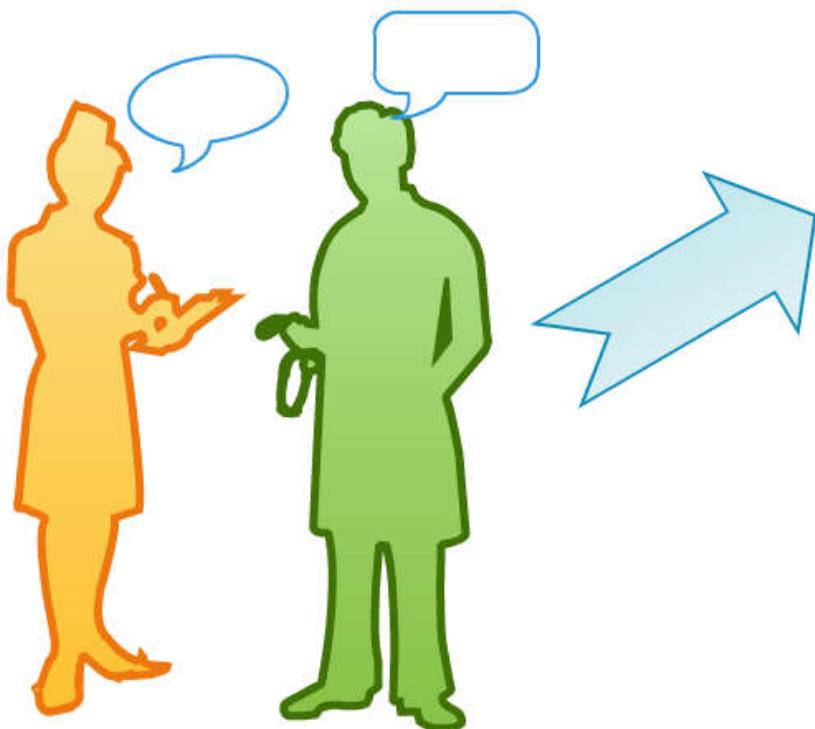
Map application



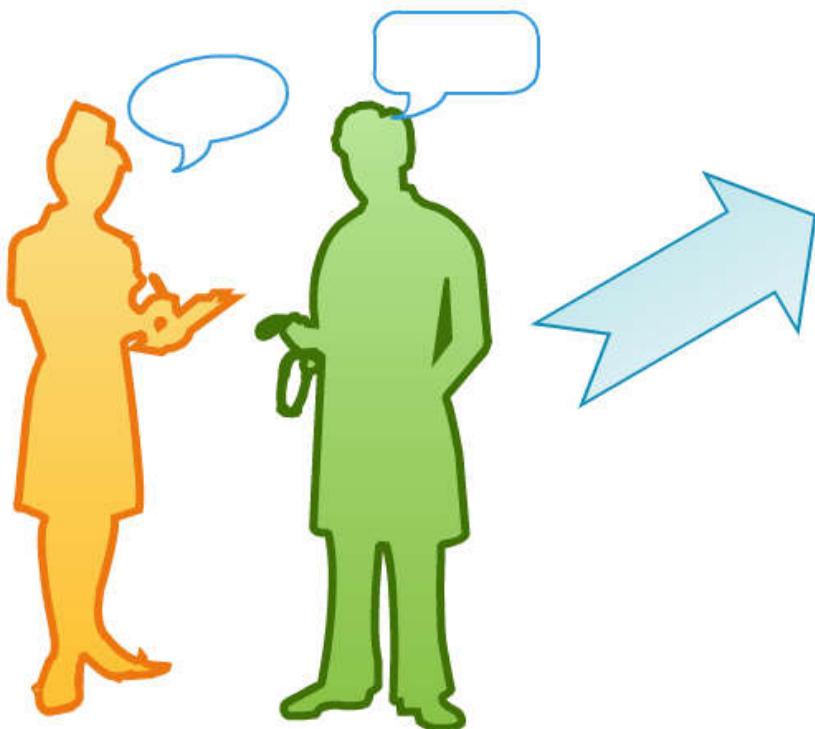
Manage device



Setting



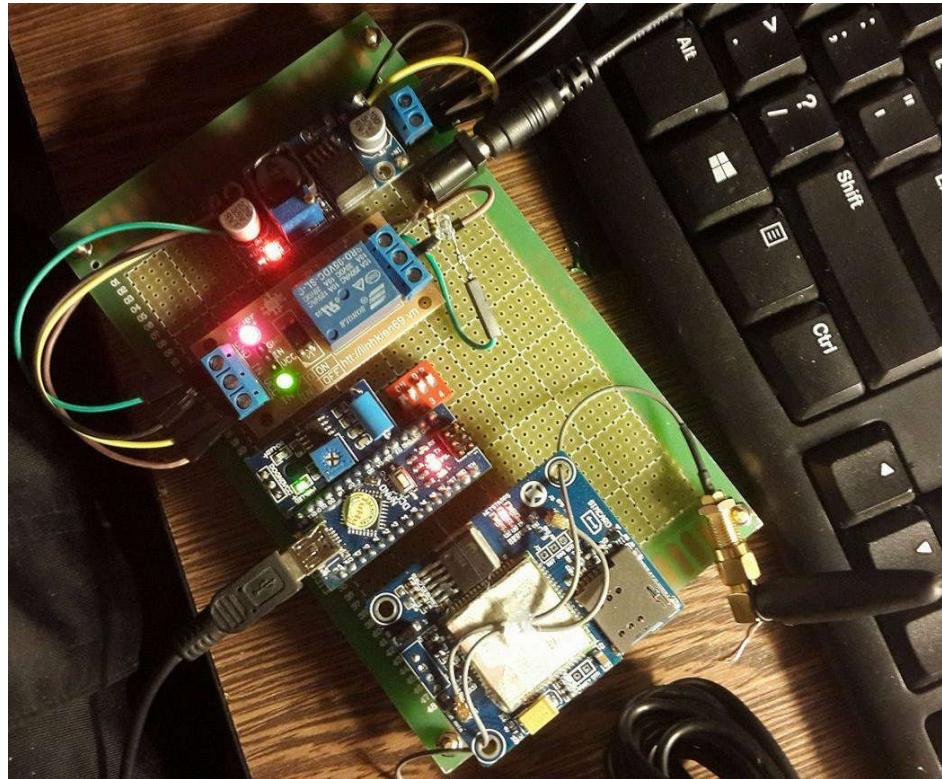
Manage user



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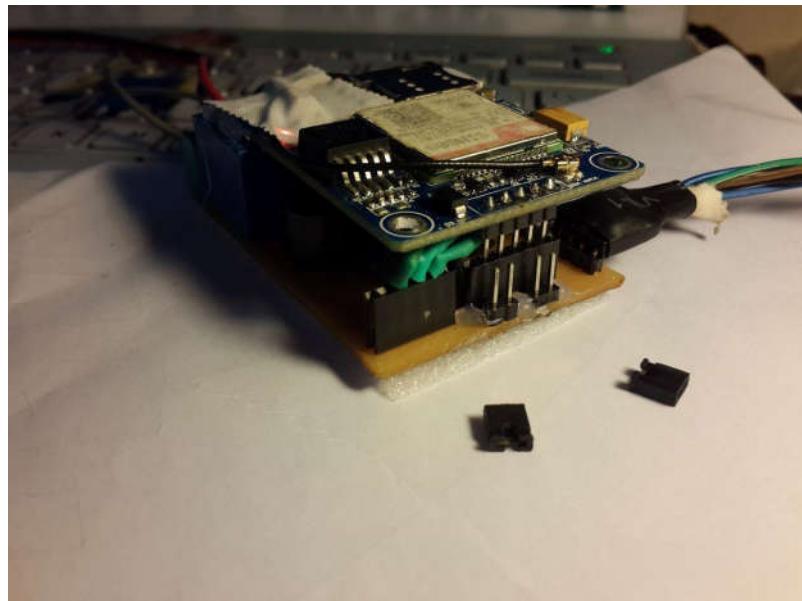
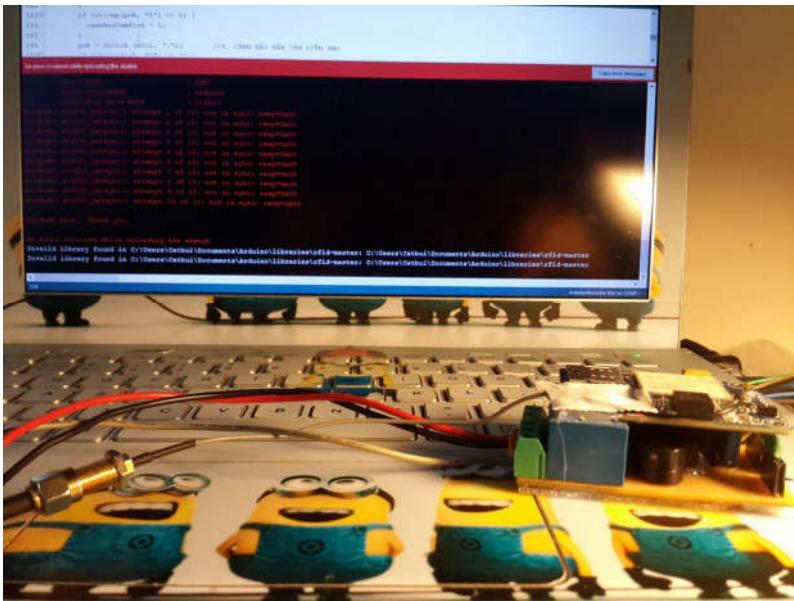
Implement



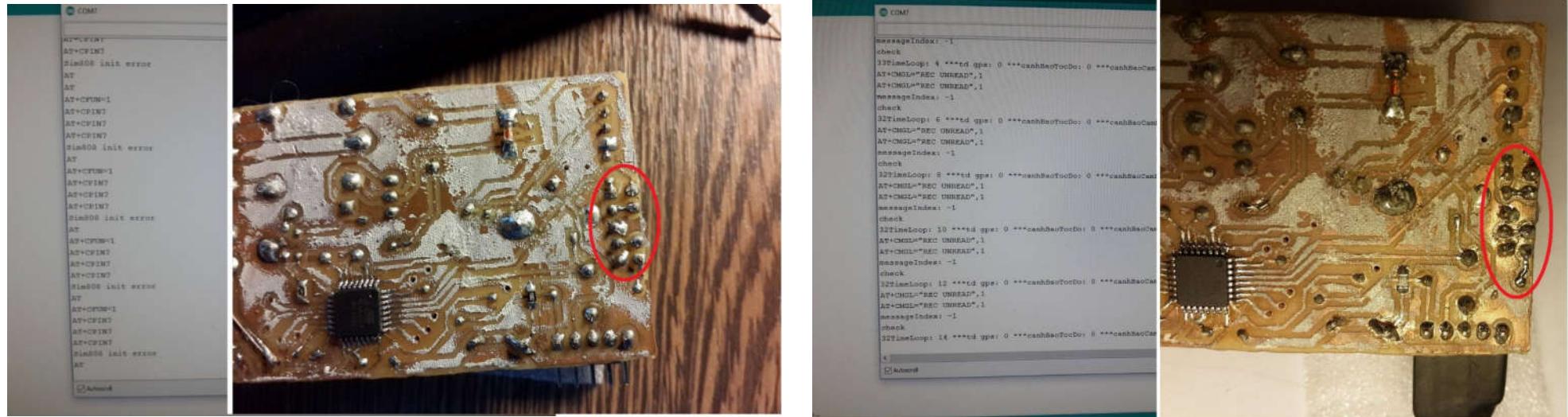
Implement



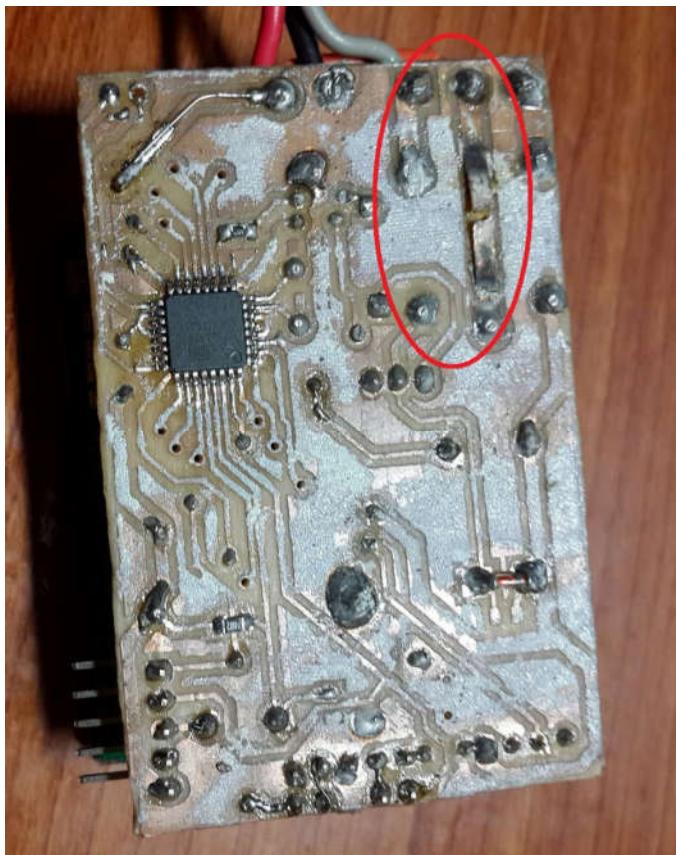
Evidence



Evidence



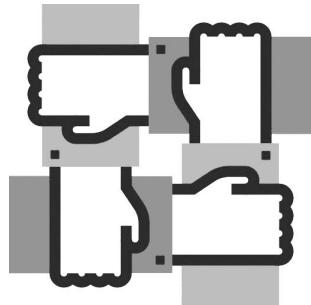
Evidence



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Lesson Learned



Teamwork



Management Skill



Business
Analysis



New Knowledge

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Demo



Q&A