A Smart Car With Pouring Water Function
by the Arduino system:

A Project Proposal

Student: **Peizhi Han**

Oct 27th, 2017

Introduction (identify a project):

This paper describes a modification of a simple Arduino base on Smart Car With Clear-headed Function. The original project, developed by RoyPeer on instructables.com, describes how to build an obstacle avoiding robot.

Novel Contribution (suggest a modification to the project):

We aim to replicate the functionality of the original project with the addition of a "pouring water" function that will achieve the effect of the alarm to remind the user to get up. The robot will look for the body to fall down the water. For this, we propose the addition of a human body infrared sensor to find the body and to pour water if find a body.

Motivation (motivation and modifications):

This project is designed for people who are struggling to get up. At the beginning of the class, we watched an alarm clock to wake up people by slapping. If you use the alarm sound to open the slapping function, then the user will be very painful, and the alarm sound too loud.

So this project will use the pouring a cup of the water to instead of slapping function in the user's face. This project is the reason for the use of smart cars because of the material. Originally this project can use motor and belt, but the belt can not be very good to withstand the cup and other modules, and with a smart car has a high degree of development.

The most important thing is that I will not use Motor Shield but I use a Motor Drive L298N.The help of the original project is not great, because I will not use Motor Shield, so the original project code and design will not apply to my project. This project is difficult, because there are many uncertainties, there are many details are unknown, such as how to carry a glass of water, which will be in practice to think of a way.

So that this project is basically from scratch to achieve.

Materials Required
Required List:
- Arduino UNO
- Bread-board
- Two motors
- Two wheels
- Motor driver L298N
- Servo
- Cup and water
- Ultrasonic ping sensor
- human body infrared sensor
- battery
- wires

(If there are omissions, I will add to complete)

Optional list:
- TRC (Clock module)
- Piezo buzzer
- LED Strip
- Keypad

Milestones:

Milestones: #	Date #	To achieve the goal	Notes and supplements
1	10.28	All parts gathered	Weld the wire with motor
2	11.04	Learn and test each module	Coding each module
3	11.11	Finish the smart car	Testing and run car on the road
4	11.18	Add holder support and water	Solve combination structure
5	11.25	Finish the project	Should done the all above part
6	12.02	If has time, do more extensions	More idea and more...

The last milestone is a "stretch goal" to do more interesting idea.
Regardless of whether each milestone is completed, it will be uploaded to GitHub in time.
When all Milestones are completed, the last completed version will be uploaded to GitHub.

Team Roles (and identify my team members):
The leader of this project is Peizhi Han.
The leader of this project is Peizhi Han. Because the whole team is only one person, so I do not need to discuss each teammate will play what kind of role.

Briefly, all things are done by me alone:
I will be responsible for purchasing the material as much as possible, because some of the material is really expensive for one person.
I will be responsible for creating, and drawing sketches.

I will be responsible for the combination of materials and modules.
I will be responsible for writing all the code and testing.
I will be responsible for documentation and upload GitHub.

Summary:
A Smart car will pour water on the face of people who are sleeping and use a simple bracket to fix the cup, and use a servo to achieve pouring. When the water is poured into the user's face, the user will wake up.

If the project can and according to plan to complete, the time also is very inadequate. The personal idea is to start immediately.

Citations:
[1] http://www.instructables.com/id/Arduino-Ultimate-Obstacle-Avoiding-Robot/
[2] CS207 Fall, Class video