1. Our improved project is to make a Smart Wheelchair.
2. Our next slide is about the Problem. So, I’m going to focus on four main points.

* First one is Difficulty in moving the patient without the assistance.

Especially, this investigation has introduced to the older people. This wheelchair can be used to the patient alone without any assistant.

* Second one Lack of enough people to care for older people and handicapped people (whose limbs are not strong) at homes.

With the current busy schedule, there are not enough people in the homes to take care of patients.

* Risk if leaving the patient at home alone.

The patient may be at risk when the patient is alone at home or away from the home.

Last one is, # We know that Patients with physical injuries and disabilities has become a day-to-day scenario. Due to accidents, health problems and wars etc.

1. So, we move on to the next slide. By this slide we have shown the project aim and objectives. Our aim is ……Create a voice-controlled wheelchair for handicapped people and elderly people whose limbs are not strong and cannot move on their own at homes

These are project objectives.

* + \*First one is to help the people who are dependent on wheelchair for their mobility.
  + \*Next one is Able to move to desired location without depend on the assistance. Our main goal is to move the wheelchair without an assistant. That is a major advantage.
  + \*3rd one is Reduce the effort to control the wheelchair for older people. By this, minimize the effort on the patient as well as on the assistant.
  + \*Next one is Ensure the safety during the movement and communicate with the assistant. This means, getting to the relevant place safely. The patient may be at risk when the patient is alone at home of away from assistant.
  + \*The last objective is we are planning to design and develop a prototype, suited to these needs.

1. Let’s move on to the next one. So, I will describe our solution.

We plan to use this wheelchair for older people whose limbs are not strong and cannot move on their own and also don’t have enough people to care for patients at homes.

* It can be controlled by voice commands.
* When controlled by voice command, if an obstacle found in the way of the wheelchair, it can be identified by the ultrasonic sensor and try to avoid, if ca then wheelchair will stop, and alarm will ring.
* the wheelchair uses three ultrasonic sensors to detect obstacles at different Heights.
* In addition, there is an emergency switch for stop the wheelchair in an emergency.
  + - * And also, the patient can control the wheelchair by a joystick.
* Here we use rechargeable battery and once the battery level reaches a certain minimum limit, it will show to the patient by an alarm .In addition, it is communicated to the patient’s assistant through a GSM module.
* Also, the coordinates of the patient's location will be shown via the GPS module.
* When a patient has an emergency, it can be communicated to the assistant, under number 01, through a keypad.
* If the patient falls out of the wheelchair, it can be detected by a load sensor mounted on the seat and sent to the assistant through a message. At the same time the coordinates of the wheelchair location will also be sent, and alarm will ring.
* in addition, these actions are controlled by a main switch.
* if the wheelchair is controlled by voice commands, it will be displayed as voice-controlled mode, and when the wheelchair is controlled by the joystick, it will be displayed as manual mode.
* when the switch is not on both modes, the system becomes inactive, and outsider can handle the wheelchair.
* so, an outsider also can handle this like a normal wheelchair.
* a seat belt is also used for this.

So, we use following input devices for this.

* A microphone for give commands to move.
* A keypad for enter the number in an emergency.
* Ultrasonic sensor for detect obstacles.
* A joystick to control the wheelchair manually.
* A main switch
* An emergency switch for stop the wheelchair in an emergency.
* A lord sensor for detect the patient’s weight.
* A GPS module for identify the location of wheelchair.

We use microcontroller for process. and these are our output devices.

* Two motors for rear wheels. As left and right.
* By them we can move or stop the wheelchair when needed.
* An LCD display
* Display the battery level and main switch mode and other messages.
* A GSM module for communicate messages to assistant.

And,

* One buzzer
* The alarm will ring when detect obstacles, fall detection and when once the battery level reaches a certain minimum limit.

The next slide shows the circuit diagram.

1. Now, let’s move on to the structure we have planned. This is the structure we are currently planning.this is the 3D view of the wheelchair.

* This is the front view. Here, we use ultrasonic sensors.
* This is the right side., we are planning to fit joystick and emergency stop switch and buzzer.
* This is the back view. we use stepper motors here.
* On left side there are an LCD display, keypad and main switch.
* And in bottom side we will use, main circuit, GPS module,GSM Module and battery.

1. By the next slide, we have shown the resources we need.

As software resource, we are use,

Atmel studio And protues stimulation.

As hardware resources, we are planning to use,

* + Atmega32 Microcontroller
  + SPCE061A Voice recognition Module & Mic
  + Load Cell 5kg
  + H x 711 Load Cell Driver
  + Ultrasonic Sensor
  + Keypad
  + 3-way Switch
  + Push Button
  + Joystick Module
  + Nema17 Stepper Motor
  + 16x2 LCD Display
  + Buzzer Module
  + Battery(12v)
  + A4988 Stepper Motor Driver
  + SIM808 GPS GSM GPRS Module

1. the next slide shows the estimated cost.

We are planning to use **a prototype** of this wheelchair.

for that, we need to buy these things.

So, we have estimated Eighteen thousand six hundred and fifteen Rupees for this.

This is the end of our presentation.

Thank you everyone.