In this project we are going to use both raspberry pi and Arduino mega for the autonomous security rover

So how does the system work actually? First it will get the list of users that has already been assigned from the booking system. Then It will check each room one by one no matter the room is already being booked or not.

When the smart security rover is inside the room, it will wait for a certain time and check whether there is a person or not. If the system found a person inside an assigned room, it will use the facial recognition system to check whether the person is the one that being assigned to that room, if yes than it will give a correct indication by turning the Green LED on, if not, if will give an alert notification by turning on the buzzer and also the red Led light. moreover, if the smart rover finds a person inside an available room, It will notify the person to assign the room first before the person use it.

And for the next slide, these are the extra component to make our project comes to life.

Thank you for watching!

**Hello everyone, In this project we created a safety system for construction places that use both raspberry pi and Arduino mega for the facial recognition system and the motor system respectively.**

**So this is the overall schematic of our proposed function, In addition to our rover we also created a booking system app that utilize blue tooth module to transmit the data.**

**As we go to the next slide,**

**the left image is the program that we created using the MIT app inventor, moreover, on the right side, this is the UI for the booking system app. This mobile application is used to transmit the combination that corresponds to the room and the users that has been assigned to that room, as we can see in the right photo, Dylan is assigned to room A, while Fernando is assigned to room b, room C is assumed can be accessed by anyone. Thus, this combinations will be transmitted to the rover as an Integer value.**

**For the next slide,**

**I am going to explain what happen after the booking system application transmitted the combination value to the rover.**

**When the Arduino received the combination, it actually received it during the setup program, then it sends the combination to raspberry pi using its digital pins. When the program starts, it check each room one by one no matter the room is already been booked or not.  
  
thus, When the smart security rover is inside the room, by using its digital pins as a communication protocol, the Arduino is going to trigger the raspberry pi to start its face recognition function, it will wait for a certain time until the face recognition function has sent back the result to Arduino. Thus, after the face recognition function has sent back the result back to Arduino, then the Arduino will trigger an alert depending on the result it gets.**

**If the worker insdide the room indeed is the on ethat has been assigned, then there will be an indicator of green LED light for certain seconds, however, if not, there will be an alert where the Arduino will turn on the red LED and the buzzer.**

**For the next slide, Dylan is going to show us how our proposed function works in real life.**