Team Name	*Reboot rebels*
Faculty and The Department	• **Faculty of Applied Science** • **Department of Computer Science**
Product Name	• **Human following robot**
Category	• **Others**

Problem Definition, Analysis and the Solution

- The aim of this project is to assist and tracking a specific patient in a hospital
- This device can be enhanced to deliver the drugs to the respective patients in concealed conditions

Product overview and Uniqueness of the Product

- ❖ Arduino Uno
- ❖ Motor Driver Shield (l293d)
- ❖ Gear motor (4x)
- ❖ TT Gear Motor wheels (4x)
- ❖ Servo Motor
- ❖ Ultrasonic Sensor
- ❖ Infrared Sensor (2x)
- ❖) 18650 Li-on Battery (2x)
- ❖ 18650 Battery Holder and charger
- ❖ Male and Female Jumper wire
- ❖ DC Power Switch
- ❖ 2 chassies
- ❖ project boards
- ❖ circuit wires
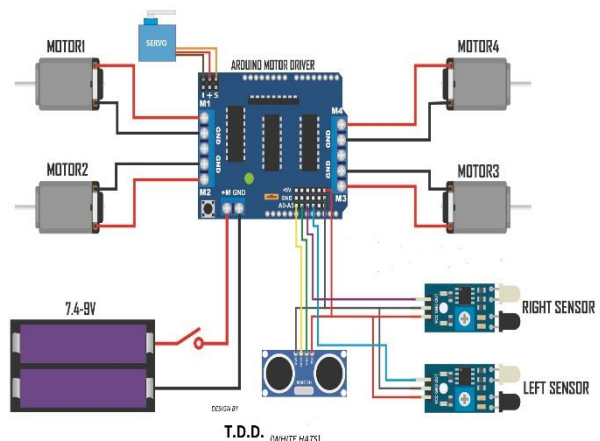
Business Model and Marketing Plan

The Human Sensor Robo, as the name suggests, appears to be a robotic device designed to detect and interact with humans. Without specific details about the functionality and features of the Human Sensor Robo, it is challenging to provide an accurate assessment of its business and revenue potential. However, I can offer some general insights on the potential success and marketing strategies for such a product.

Business Potential:

1.Market Demand: There is a growing demand for robotics and automation in various industries, including healthcare, retail, hospitality, and manufacturing. If the Human Sensor Robo can provide valuable solutions in these sectors, there is potential for significant business growth.

2.Efficiency and Cost Savings: The automation of human detection and interaction tasks can lead to improved efficiency, reduced labor costs, and enhanced customer experiences. This could make the Human Sensor Robo an attractive solution for businesses looking to optimize their operations.

3.Technological Advancements: If the Human Sensor Robo incorporates advanced technologies such as artificial intelligence, computer vision, and natural language processing, it can offer sophisticated capabilities and provide a competitive edge in the market.

Revenue Potential:

1.Product Sales: The Human Sensor Robo can generate revenue through direct sales to businesses and organizations that require human detection and interaction capabilities. Pricing strategies should be based on production costs, competition, and perceived value.

2.Service and Maintenance: Offering ongoing maintenance and support services for the Human Sensor Robo can create a recurring revenue stream. This can include software updates, repairs, and customer assistance.

3.Customization and Integration: Providing customization options or integration services to tailor the Human Sensor Robo to specific industry needs can be another potential revenue source.

Marketing and Business Tactics:

1.Targeted Marketing: Identify key industries and sectors where the Human Sensor Robo can provide significant benefits and tailor marketing efforts to reach those specific audiences. Demonstrations and Trials: Offer live demonstrations and trials to potential customers to showcase the capabilities and benefits of the Human Sensor Robo. This can help build trust and generate interest.

2.Partnerships: Collaborate with technology partners, industry experts, and resellers to extend the reach of the Human Sensor Robo and tap into their existing networks.

Thought Leadership: Establish the company behind the Human Sensor Robo as a thought leader in robotics and automation through content marketing, speaking engagements, and participation in industry events.

3.Customer Support and Feedback: Provide excellent customer support and actively seek feedback from users to improve the product and build long-term relationships.

The Success in the Next Five Years:

The success of the Human Sensor Robo in the next five years will depend on several factors,

including:

Product Differentiation: The ability to offer unique features, superior performance, and customization options will be crucial in standing out from competitors.

Technological Advancements: Keeping up with advancements in robotics and incorporating new technologies will ensure the Human Sensor Robo remains relevant and competitive.

Market Adaptation: Understanding customer needs, evolving industry requirements, and adapting the product accordingly will be essential for sustained success.

Partnerships and Collaboration: Collaborating with strategic partners can open up new opportunities, enhance market reach, and drive adoption of the Human Sensor Robo.

Competitive Landscape: Monitoring and responding to competitive pressures will be necessary to maintain a strong market position.

Please note that the above assessment is based on general insights, as the specific details and capabilities of the Human Sensor Robo were not provided

Implementation

We use Arduino language and some libraries to create coding part of this project and we choose JLC PCB company for order our circuit bord. also we used Autodesk *TINKERCAD* app for design our circuit.

The following code was used to stop the root from moving

```
}else if(distance > 15) {


   Motor1.setSpeed(0);
   Motor1.run(RELEASE);
   Motor2.setSpeed(0);
   Motor2.run(RELEASE);
   Motor3.setSpeed(0);
   Motor3.run(RELEASE);
   Motor4.setSpeed(0);
   Motor4.run(RELEASE);
}
}
```

The following code was used to forward the root from moving

```
if((distance > 1) && (distance < 15)){


   Motor1.setSpeed(130);
   Motor1.run(FORWARD);   |
   Motor2.setSpeed(130);
   Motor2.run(FORWARD);
   Motor3.setSpeed(130);
   Motor3.run(FORWARD);
   Motor4.setSpeed(130);
   Motor4.run(FORWARD);
```

The following code was used to right side and left side the root from moving

```
}else if((Right_Value==1)&&(Left_Value==0)) {


  Motor1.setSpeed(150);
  Motor1.run(BACKWARD);
  Motor2.setSpeed(150);
  Motor2.run(BACKWARD);
  Motor3.setSpeed(150);
  Motor3.run(FORWARD);
  Motor4.setSpeed(150);
  Motor4.run(FORWARD);
  delay(150);



}else if((Right_Value==0) && (Left_Value==1)) {

  Motor1.setSpeed(150);
  Motor1.run(FORWARD);
  Motor2.setSpeed(150);
  Motor2.run(FORWARD);
  Motor3.setSpeed(150);
  Motor3.run(BACKWARD);
  Motor4.setSpeed(150);
  Motor4.run(BACKWARD);
  delay(150);
```

User Scenario

We use this technology in the medical field. Below is an example of that,

During a virus epidemic, nurses were in a situation where they could reach patients, but nurses could not, because this is a virus. But patients had to approach them to provide medicine. Here, the hospital used a human-following robot. it goes to patient and gives them the medicine they need. This reduces the spread of the virus to hospital staff.

Team Details

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