

Remote Controlled Crawler

Limitations

- Wi-Fi Connection required and it consumes more power
- Battery life and processing power of the book
- Camera provides live view but due to Internet speed/latency it freezes sometimes

... power source or Sunspot is not capable of handling all sensors together

Goals

- Control the Crawler via the Internet.
- Be able to navigate smoothly by visually seeing the path.

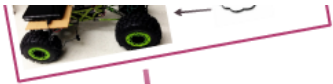


How ?

Original Solution

- Use two motors: One on the crawler and other connected to a PC to send commands to move crawler and control the speed.
- But range of motion were far less than to run the crawler in a meaningful space.

Original Solution



Webpage Controls

Remote Controlled Crawler

Goals

- *Control the Crawler via the Internet.*
- *Be able to navigate smoothly by visually seeing the path.*



How ?

Original Solution

- *Use two motes: One on the crawler and other connected to a PC to send commands to move crawler and control the speed.*
- *But range of motes were far less than to run the crawler in a meaningful space.*



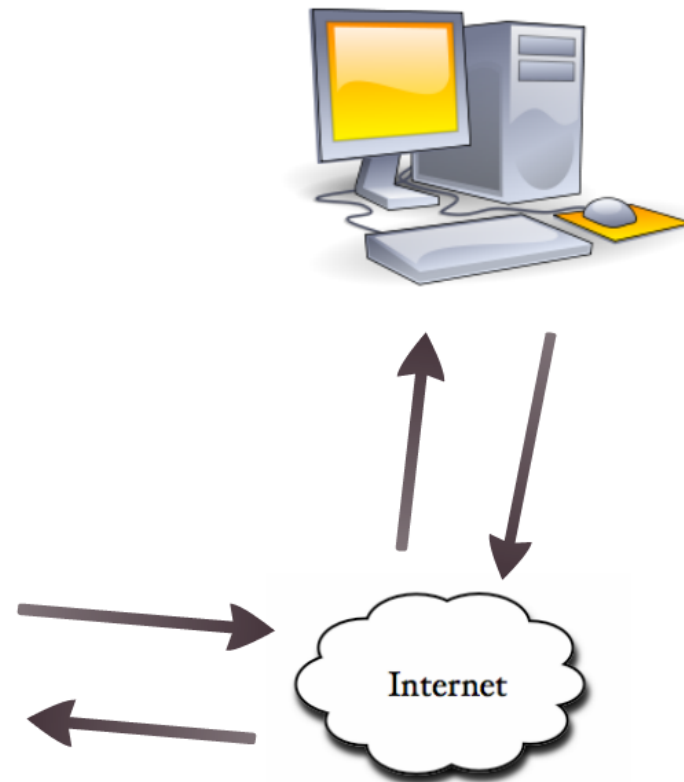
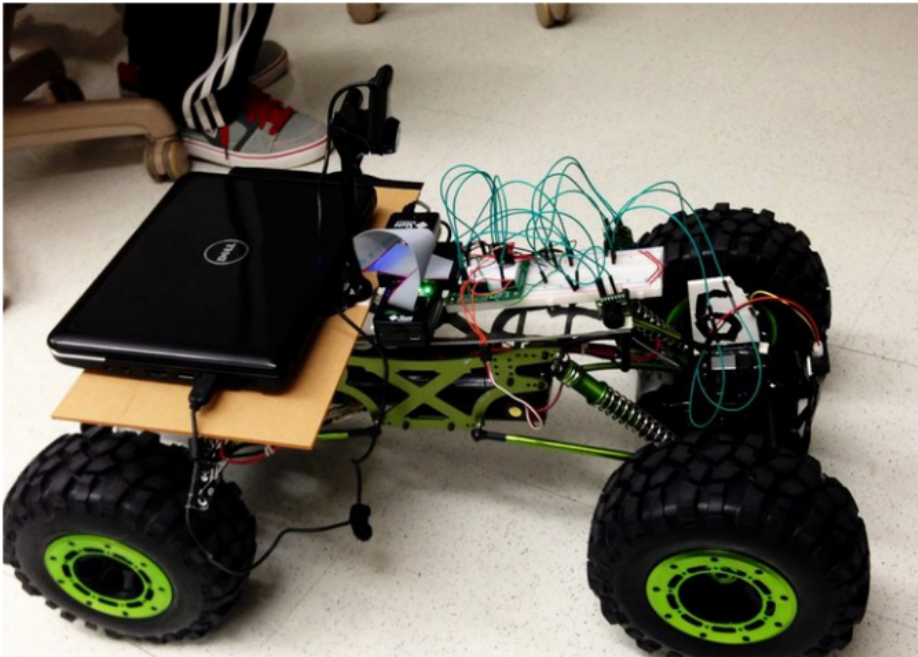
Original Solution



Alternate Solution (Better !)

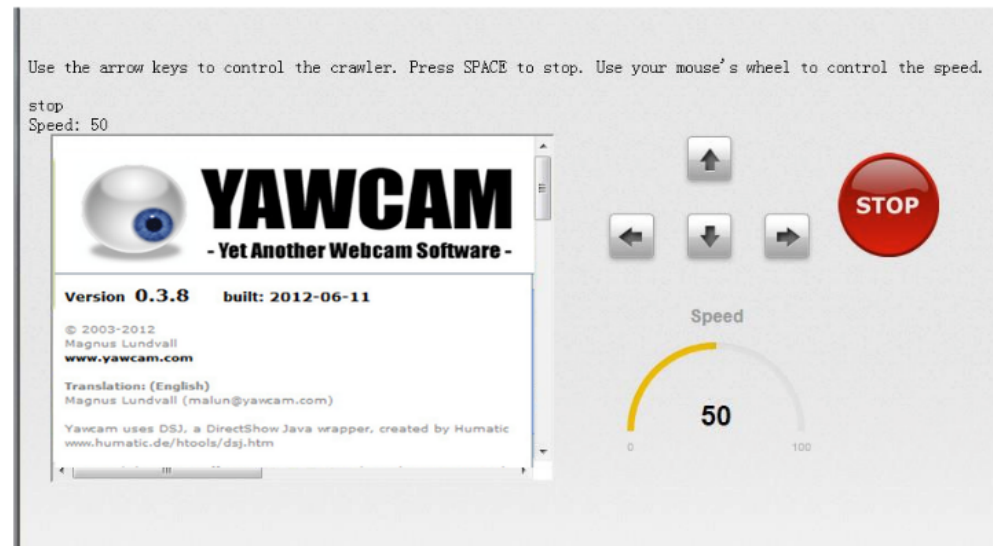
- *Use Netbook on the crawler*
- *Connect it to Wi-Fi*
- *Host a web page on server running on Netbook*
- *Access it to send commands which is written to a text file*
- *Base Station connected to Netbook forwards the command to mote connected to Crawler*
- *Also web page hosted on server accessed the camera connected to Netbook which shows the live view of where Crawler is moving*

Alternate Solution (Better !)



Webpage Controls

- JavaScript for client side.
- JSP for server side.
- Ajax to bridge.



Used Yawcam to stream live video.

What Else ?

- *Even though we can see the live view, we added some self safety features to Crawler*
 - *Front and Back IR sensors to avoid Collisions*
 - *Ultrasonic sensors on side to guide itself like previous challenge (didn't work due to less power supply, all sensors using same power source or Sunspot is not capable of handling all sensors together)*

Limitations

- *Wi-Fi Connection required and it consumes more power*
- *Battery life and processing power of Net book*
- *Camera provides live view but due to Internet speed limitations it freezes sometimes*

Future Scope

- Make Camera to rotate
- Using the side sensors and also other sensors we can map the surrounding while the crawler moves

