# Ground Robots:

The customer requires (Requirement 3) at least a team of two robots working together and one of which should be an aerial robot. The other robot proposed to be used is a ground robot and is to have the following applications:

* Used for off board processing
* Map the area in parallel to the quadcopter
* Carry and deliver payload, reducing load carried by the quadcopter
* Act as the point of communication between aerial robots and ground station
* Act as a centralized planning units, dictating where the aerial robot is to go next
* Serve as a test bed for planning algorithms, SLAM etc.

It is proposed that the team will use the TurtleBots from Prof. Nisar Ahmed’s lab. These TurtleBots have the following hardware specifications:

* iRobot Create
* Microsoft Kinect
* Odroid XU4
* Kinect Mounting Hardware
* Hokuyo Laser Scanner
* FLiR

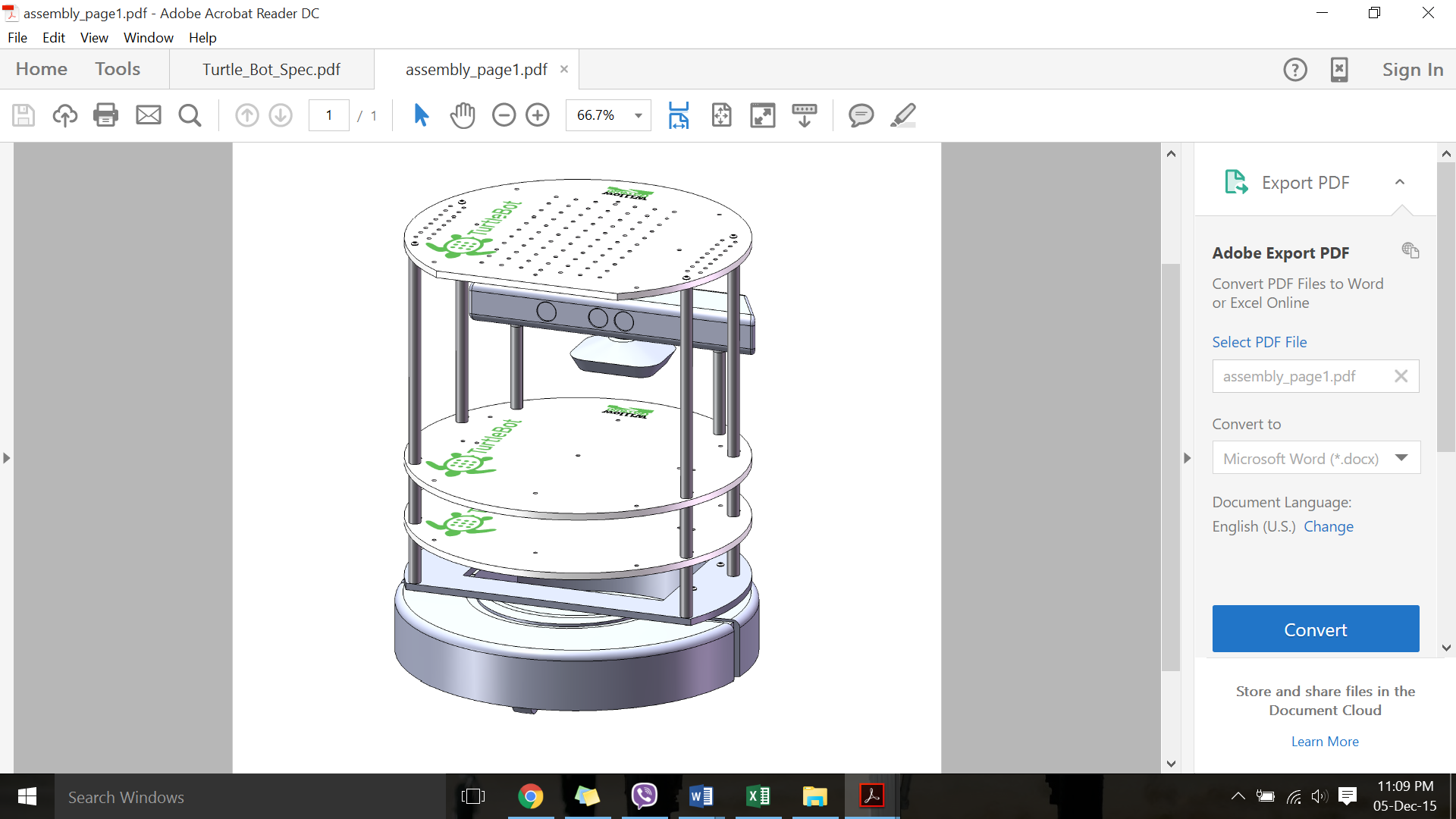
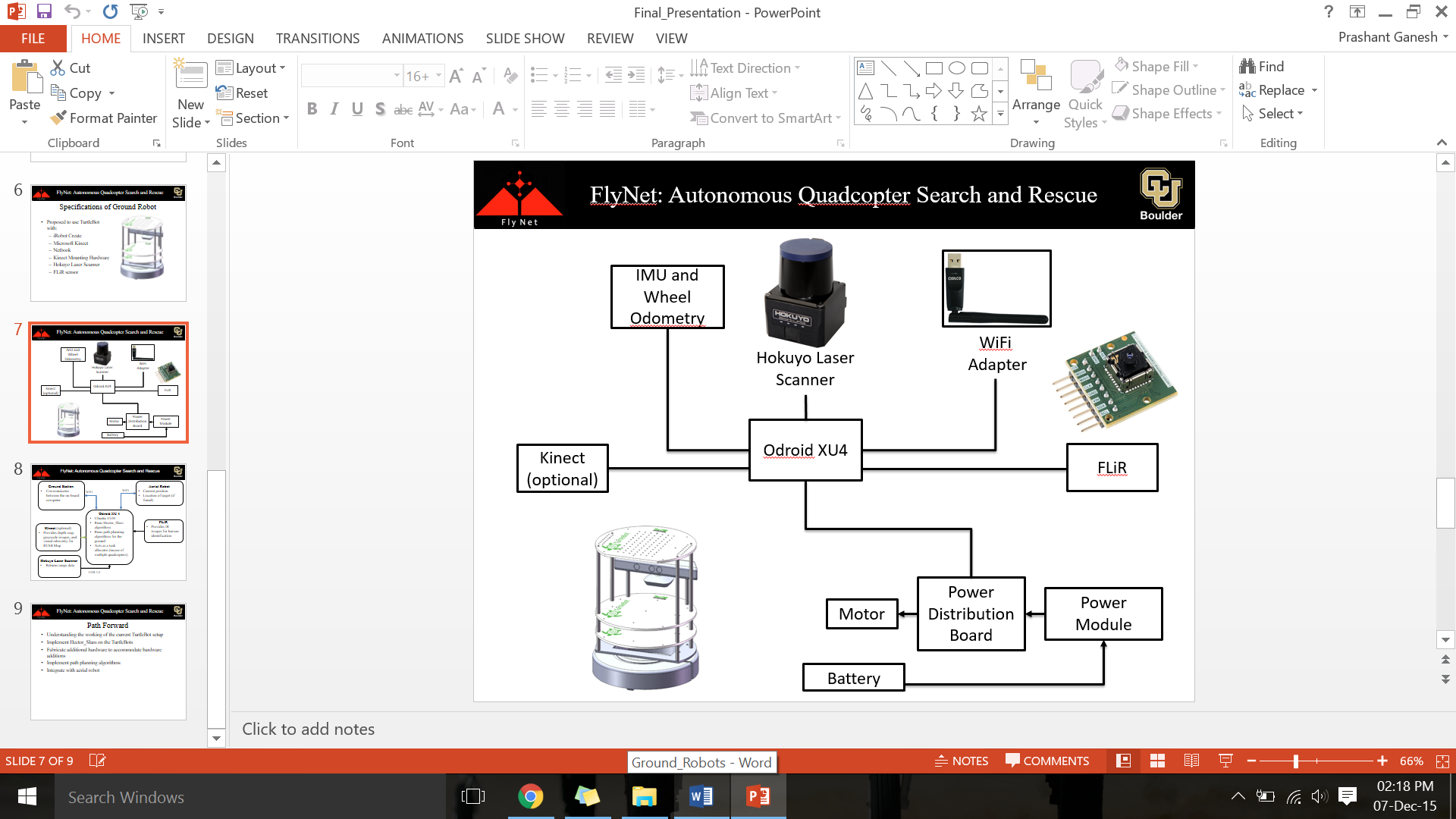


Figure 8:Exsisting TutrleBot

At the moment, the TurtleBots takes goal positions or velocity commands as its input and do not do any mapping on their own. It also relies on the depth image from the Kinect for obstacle avoidance. Hence, it is suggested that we use Hector\_Slam using a Hokuyo Laser Scanner.

The hardware block diagram is given below:



The over system block diagram is given below:

