Agenda:

1) Interview with client
   a) Go over team’s questions + Dave Beaver’s responses
   b) Additional questions/clarifications/information
2) Now, what’s next?

1) Client Interview

a) Team’s questions + Dave’s responses
Note: Dave Beaver wasn’t able to make to this interview. One of the technician Kacey is available at the meeting to aid the team with additional questions.

The following is the list of questions team DEADS drafted and finalized by Dr. Wall, as well as the response provided by Dave Beaver:

Technical

1. What is the minimum battery life for each piece of equipment?
   It would be nice to have at least one solid week of battery life. Two weeks would be better

2. Do the batteries have to meet any specifications? i.e. store bought, rechargeable, etc…
   Over the counter, store bought is fine. 9-volt and double A is what I have seen in some of the driveway sensor advertisements.

3. What is the maximum size/weight for each piece of equipment?
   The lighter the better. It seems that what I have in mind (assuming it can be put to use) are small light packages anyway. For your consideration look at some of the equipment at the following link which I provide strictly as a suggestion of the type of system I was hoping to employ.  http://www.specialbuys.com/sb-driveway-alerts.htm
   Better packages, prices, etc. may be found elsewhere and I leave that to your discretion.

Operations

1. What detection range is required for each sensor, including peripheral?
   The more the better. Perhaps there are some systems that allow for a sensitivity adjustment which might serve to minimize false signals (wind blown brush and trees etc.). A minimum would be in the range of 500 ft. Some advertisements claim as much as 2500 feet detection. If these could be put to use it would be useful.
However, too much range may induce false signals. A medium to wide peripheral detection would probably be best rather than a narrow field. Say something in the area of 20 degrees total from point of origin.

2. What is the timing scheme/interval after the initial animal detection?
If I understand the question correctly. The initial detection should initiate the firing mechanism at once. At that point it would be most desirable to have an adjustable timer that allows the cannon to continue firing for an adjustable amount of time (5 to 20 minutes). If the adjustable feature is untenable then a fixed time of about 15 minutes would probably be suitable.

3. What triggering scheme will be used? Will one sensor trip all cannons or just cannons within a certain distance?
It would be most desirous to have a many to one and a one to many option. That is, one sensor could be set to trigger one to many cannons and one cannon could be triggered by numerous sensors. If however, a choice had to be made I think it would probably be most workable to have one sensor/trigger per cannon.

4. What will be the maximum distance between each sensor and canon?
I envision that a maximum distance of 300 feet should be sufficient.
   a. Please provide a map or GPS coordinates for the target, so that we may locate cannon/sensor positions on the map.
I am unsure what you are asking. We can provide maps of areas that are representative of the situations we will be dealing with but these cannons and sensor/trigger mechanisms will be placed variously along field edges as needed.

5. What will be the maximum distance between sensors and the maximum distance between cannons?
Assuming that there is one sensor per cannon, the units (cannon/sensor) may be solitary, within 100 yards of each other or a mile or more distant from each other.

6. What is the maximum and minimum number of sensors and cannons per network?
I think that will be determined by whether or not you can devise a many to one or one to many system as referred to above.

7. Are there any safety concerns that will need to be addressed?
The construction of the system I am envisioning will not add any safety concerns. There are some concerns regarding fire safety etc. that one needs to be aware of but this is a consequence of the cannons themselves and not from any modifications we are trying to effect in a sensor/trigger system.
   a. Will the cannon be disarmed remotely?
   No.
   b. How do you keep people from triggering the device?
   These are primarily set in remote locations where interference by persons not involved in the operation are likely to frequent.

8. Is there a night-time only operations mode?
It would be convenient to have a choice but if a choice were necessary then a 24 hour mode would be required.

Environment
1. Will there be a line of sight between each piece of equipment?
   It could be either way depending on the terrain.
2. What weather conditions must the equipment be able to withstand? Will the gear be outdoors during the winter?
   These systems need to withstand as much weather extreme as possible. They are used year-round and in open terrain.
3. What terrain must the system be able to operate in?
   Virtually anything.
4. What is an appropriate test site close to the University?
   a. Uofl Arboretum
   b. Guy Wicks Field
   c. Softball field
   d. Something else
   It should be possible to devise all the working parts of the sensor/triggering system without actually utilizing the cannon. Once that is completed however, we could arrange for a non-obtrusive location to test the final system that is convenient for you.

Miscellaneous

1. What is our budget?
   I can initially commit $1000 to the project. If necessary I should be able to find other funds to see it through.
2. Is there a theft or vandalism concern?
   No.
3. How will the effectiveness be assessed?
   This could be difficult to ascertain. It is my assertion that we will be able to witness a much longer period of effectiveness of the systems by virtue of longer periods of animal absence in the areas where the cannons will be deployed. The animals will be less likely to acclimate to the stimuli therefore increasing the time span they will avoid the area. At least that is my “theory”

b) Additional questions/clarifications/information:

2) What is the timing scheme/interval after the initial animal detection?
   As variable as possible. 1-20 minutes currently. Would like to have it adjustable and do it in the field. Two time intervals involved: interval1 20 minutes max for canon to fire at any given time. Interval2: valve would open to at least 1 minute to 15 minutes (have valve open at least 1 min. to fill up the gas)

1) Does canon have any electrical/power?
No, it’s all mechanically-driven right now. The opening/closing of valve sets up the
gas for the tank

2) How will the valve be triggered?
System need to actuate/trigger this valve: i.e need some kind of mechanism that pushes
up and down the valve that open/close the gas to the nanon. Possibly use solenoid
timing.

3) Any FCC regulations?
No, no frequencies interferences involve. Just wireless connection between sensors and
transmitter won’t create any problems.

4) Lightning?
No, don’t get any lightning burning these things 😊 It’s good to go. Well, sometimes
these devices get burned-up by themselves 😓

Note1: Animals problems occur mostly in August for 2 weeks of the crop harvest season
Note2: Golf course is another possible spot to test for motion sensing

2) What’s next?

Team will review these responses and come up with a written list of project requirements
and desirables, send it to client for review before attacking on any design solutions.